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**Bibliography**

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**Summary**

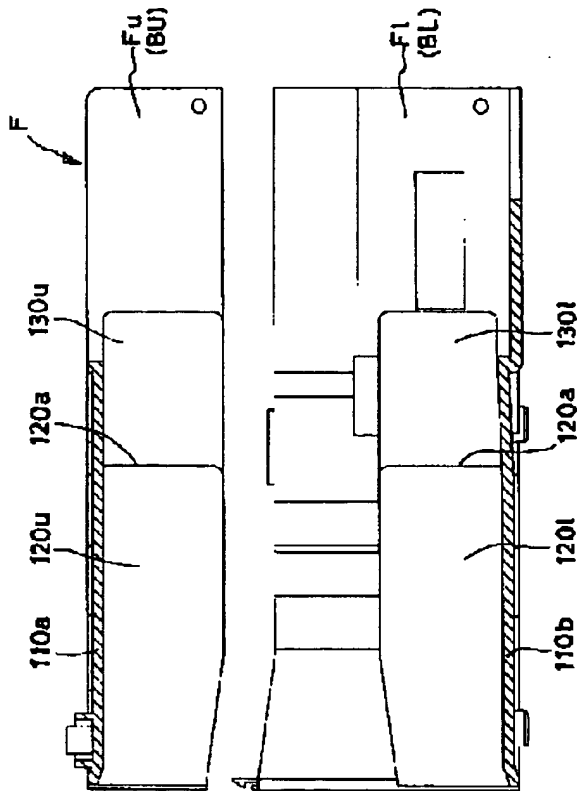
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(57) [Abstract]

[Technical problem] An assembly is easy and the bill transport device which bill plugging does not generate is offered cheaply.

[Means for Solution] While making the conveyance path section conveyed from an upstream to a downstream where a bill is pinched, and the bill fed into the bill injection machine join the above-mentioned conveyance path section It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source. a unification conveyance mechanical component While showing the bill sent in from the conveyance path section of an upstream to the conveyance path section of a downstream It has a member 120,130. the acceptance guide guided so that the bill sent in from a bill injection machine side may be made to join the conveyance path section from the side -- the above-mentioned unification conveyance mechanical component -- the top frame Fu and a bottom acceptance guide -- with the bottom block BU which really cast Members 120u and 130u by synthetic resin the bottom frame Fl and a bottom acceptance guide -- division composition of the members 120l. and 130l. was carried out at the bottom block BL really cast by synthetic resin

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**CLAIMS**

[Claim(s)]

[Claim 1] The conveyance path section conveyed from an upstream to a downstream where a bill is pinched The unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection

machine join the above-mentioned conveyance path section While have the acceptance guide member which is the bill transport device equipped with the above, and is guided so that the bill sent in from a bill injection machine side may be made to join the conveyance path section from the side, while a unification conveyance mechanical component shows the bill sent in from the conveyance path section of an upstream to the conveyance path section of a downstream and carrying out the above-mentioned unification conveyance mechanical component as block construction, it carries out having accepted with the frame of the unification conveyance mechanical component concerned, and having really cast a guide member

[Claim 2] The bill transport device according to claim 1 which divided the bottom block which really cast the top frame and the bottom acceptance guide member for the unification conveyance mechanical component, and a bottom frame and a bottom acceptance guide member into the really cast bottom block.

[Claim 3] The conveyance path section conveyed from an upstream to a downstream where a bill is pinched The unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section the [ the 1st base case which is the bill transport device equipped with the above, and cast the conveyance path section by synthetic resin, and ] -- it constitutes from 2 base cases, and in the 1st base case, a pulley rail and a conveyance rail are prepared in one, and it is characterized by preparing a roller rail and a conveyance rail in one at the 2nd base case

[Claim 4] The conveyance path section conveyed from an upstream to a downstream where a bill is pinched The unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section It is the bill transport device equipped with the above. between a unification conveyance mechanical component and a bill injection machine The bill repeating installation which sends into the entrance of the unification conveyance section the bill sent out from the bill injection machine is made to intervene. the above-mentioned bill repeating installation It has a case-cum-the spacer which can contain the delivery mechanism and the delivery mechanism concerned of a bill. the above-mentioned delivery mechanism The axis of rotation prepared in the vertical direction of a base object free [ rotation ], and the rotation pulley formed in the middle of this axis of rotation, It has the pressure-welding roller energized so that a pressure welding might be carried out to this rotation pulley. the above-mentioned base object While having the connection in which the fitting connection with the connection section prepared in the end at the frame of the unification conveyance section is possible It is characterized by having the connection section of the above-mentioned frame, and the isomorphism-like connection section in the other end, constituting so that the base object concerned or a case-cum-a spacer can be connected with \*\*,

connecting the above-mentioned rotation pulley to the driving shaft of a unification conveyance mechanical component by the driving belt, and carrying out a rotation drive.

[Claim 5] The bill transport device according to claim 4 it was made to correspond to different \*\*\*\* by combining two or more bill repeating installation.

[Claim 6] The bill transport device according to claim 4 or 5 which established the mounting hole of the sensor for bill detection in the position corresponding to \*\*\*\* of bill repeating installation.

[Claim 7] The conveyance path section conveyed from an upstream to a downstream where a bill is pinched The unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section It is the bill transport device equipped with the above, and is characterized by making easy attachment and detachment of the conveyance belt over which separates a drive roller and a conveyance belt from a unification transport device, and the above-mentioned pulley is built at the base case which constitutes the conveyance path section while forming the pulley of the cantilever structure in which the cut side was formed in the upper surface.

[Claim 8] The bill transport device according to claim 7 which constituted the conveyance path section from a 1st base case of a fixed side, and a 2nd base case which can be opened, prepared it in the 2nd base case by the side of opening of the above-mentioned pulley, and enabled exchange of a conveyance belt the whole 2nd base case.

[Claim 9] The bill transport device which fixed the motor with the motor fixed means of a protrusion state while making the motor supporter stop the piece of attachment which established the motor supporter which carries out opening, and the motor fixed means constituted possible [ frequent appearance ] in the direction of the side, and was installed in the wiring box in which it is the bill transport device which is characterized by providing the following, and which is installed in a game store, and the motor of a driving source is attached at the motor The conveyance path section conveyed from an upstream to a downstream where a bill is pinched The unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section

[Claim 10] The bill transport device according to claim 9 which used the synchronous motor for the motor of a driving source.

[Claim 11] The bill transport device according to claim 9 or 10 which prepares a salient so that a crevice may be generated between the motor clamp face of a wiring box, and the motor tie-down plate of a motor, and was made to radiate heat about the motor.

[Claim 12] A bill transport device given in the claim 9 or any of 11 they are. [ which made the motor supporter the taper / with a large opening edge / section with the

narrow back ]

[Claim 13] The bill transport device characterized by to prepare the bill guide of the shape of a slot which is the bill transport device installed in the game store equipped with the conveyance path section conveyed from an upstream to a downstream where a bill is pinched, and the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section, and guides near the soffit of a bill to the conveyance path section.

[Claim 14] The bill transport device which is a bill transport device installed in the game store equipped with the conveyance path section conveyed from an upstream to a downstream where a bill is pinched, and the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section, and is characterized by preparing the exhaust port to which a pellet etc. can fall in a part for the point of a conveyance path.

[Claim 15] The conveyance path section conveyed from an upstream to a downstream where a bill is pinched The unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section It is the bill transport device equipped with the above, and while preparing a cavity in the side peripheral surface of the pressure-welding roller formed in the conveyance path section, it is characterized by pinching the bill which builds the pressure-welding roller concerned over an endless flat belt, builds the pulley corresponding to the above-mentioned pressure-welding roller over an endless round belt, is made to carry out the pressure welding of the above-mentioned endless flat belt and the endless round belt, and is conveyed.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the bill transport device which constitutes the conveyance path of a bill in detail, and connects two or more bill conveyance units which formed a part of conveyance path of a bill possible [ opening and closing ], and constitutes them about the bill transport device for conveying the bill fed into the bill injection machine which established game bases, such as a pachinko base, in the arranged tooth-back side at the ball rental machine between bases, the money-changing machine, etc. (recovery).

[0002]

[Description of the Prior Art] The bill used in a pachinko game store etc. and the ball rental machine between bases of coin combination (it is hereafter described as a ball rental machine) are known as a well-known thing. It is in it and the ball rental machine with which a 1000 yen bill can use the bill of 5000 yen and 10,000 yen from the first has also appeared in recent years. The role which the bill transport device which collects these bills certainly in such a background plays is large.

[0003] Conventionally, as this kind of a bill transport device, it consists of a base case which carries out opening to one side of the pinching direction of a bill, and an opening-and-closing case which can be opened and closed and which closes opening of this base case, the endless round belt for conveyance is attached in the aforementioned base case, and two or more rollers which pinch a bill by collaboration with the above-mentioned endless round belt, and are conveyed are attached in the aforementioned opening-and-closing case.

[0004] The unification conveyance mechanical component for making the bill fed into the ball rental machine join from the side is prepared in the bill conveyance way formed along the game base installed successively on the other hand. This unification conveyance mechanical component is constituted by \*\*\*\*(ing) the guide member for making the bill conveyed from the upstream in a bill conveyance way on a lower stream of a river, and the bill fed into the bill injection machine join in an enclosed-type frame.

[0005] On the other hand, when bill plugging occurs on a bill conveyance way etc., and a salesclerk does opening operation of the opening-and-closing case of the aforementioned bill transport device to a base case, the pinching state of a bill is canceled and it has the structure where removal of the bill got blocked in the bill conveyance way etc. can be performed quickly. Since [, such as a bill which curled, for example, and a bent bill ] the bill of various peculiarities is variously fed into a ball rental machine, this is a sake in consideration of the workability at the time of the bill plugging.

[0006]

[Problem(s) to be Solved by the Invention] The conventional bill transport device assembles the parts of a large number by which sheet metal work was generally carried out, forms each function part, and constitutes the whole equipment



combining these function parts. For this reason, there was a possibility great trouble not only starts an assembly, but that a bill would not flow smoothly and bill plugging might occur by this deviation if out of order even when assembly positions are few. Moreover, there were many part mark, assembly costs, such as part cost and a labor cost, increased, and it had become a high product after all.

[0007] this invention was proposed in view of the above, and assembly and maintenance are easy for it and it aims at offering cheaply the bill transport device which bill plugging does not generate.

[0008]

[Means for Solving the Problem] Invention indicated to the claim 1 in order to attain the above-mentioned purpose The conveyance path section conveyed from an upstream to a downstream where a bill is pinched, and the bill fed into the bill injection machine It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the above-mentioned conveyance path section join. a unification conveyance mechanical component While showing the bill sent in from the conveyance path section of an upstream to the conveyance path section of a downstream While having the acceptance guide member guided so that the bill sent in from a bill injection machine side may be made to join the conveyance path section from the side and making the above-mentioned unification conveyance mechanical component into block construction It is the bill transport device characterized by having accepted with the frame of the unification conveyance mechanical component concerned, and really casting a guide member by synthetic resin. Invention indicated to the claim 2 is the bill transport device which divided the bottom block which really cast the top frame and the bottom acceptance guide member for the unification conveyance mechanical component, and a bottom frame and a bottom acceptance guide member into the really cast bottom block in addition to the composition of a claim 1.

[0009] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 3 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. the [ the 1st base case which cast the conveyance path section by synthetic resin, and ] — it is the bill transport device characterized by having constituted from 2 base cases, having prepared the pulley rail and the conveyance rail in the 1st base case at one, and preparing a roller rail and a conveyance rail in the 2nd base case at one

[0010] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 4 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. between a

unification conveyance mechanical component and a bill injection machine The bill repeating installation which sends into the entrance of the unification conveyance section the bill sent out from the bill injection machine is made to intervene. the above-mentioned bill repeating installation It has a case-cum-the spacer which can contain the delivery mechanism and the delivery mechanism concerned of a bill. the above-mentioned delivery mechanism The axis of rotation prepared in the vertical direction of a base object free [ rotation ], and the rotation pulley formed in the middle of this axis of rotation, It has the pressure-welding roller energized so that a pressure welding might be carried out to this rotation pulley. the above-mentioned base object While having the connection in which the fitting connection with the connection section prepared in the end at the frame of the unification conveyance section is possible It is the bill transport device characterized by having the connection section of the above-mentioned frame, and the isomorphism-like connection section in the other end, constituting so that the base object concerned or a case-cum-a spacer can be connected with \*\*, connecting the above-mentioned rotation pulley to the driving shaft of a unification conveyance mechanical component by the driving belt, and carrying out a rotation drive. Invention indicated to the claim 5 is combining two or more bill repeating installation in addition to the composition of a claim 4, and is the bill transport device it was made to correspond to different \*\*\*\*. Invention indicated to the claim 6 is the bill transport device which established the mounting hole of the sensor for bill detection in the position corresponding to \*\*\*\* of bill repeating installation in addition to the composition of claims 4 or 5.

[0011] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 7 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. It is the bill transport device characterized by making easy attachment and detachment of the conveyance belt over which separates a drive roller and a conveyance belt from a unification transport device, and the above-mentioned pulley is built at the base case which constitutes the conveyance path section while forming the pulley of the cantilever structure in which the cut side was formed in the upper surface. Invention indicated to the claim 8 is the bill transport device which in addition to the composition of a claim 7 constituted the conveyance path section from a 1st base case of a fixed side, and a 2nd base case which can be opened, prepared it in the 2nd base case by the side of opening of the above-mentioned pulley, and enabled exchange of a conveyance belt the whole 2nd base case.

[0012] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 9 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the

bill injection machine join the above-mentioned conveyance path section. While making a motor supporter stop the piece of attachment which established the motor supporter which carries out opening, and the motor fixed means constituted possible [ frequent appearance ] in the direction of the side, and was installed in the wiring box furnished with the motor of a driving source at the motor. It is the bill transport device which fixed the motor with the motor fixed means of a protrusion state.

Invention indicated to the claim 10 is the bill transport device which used the synchronous motor for the motor of a driving source in addition to the composition of a claim 9. Invention indicated to the claim 11 is the bill transport device which in addition to the composition of claims 9 or 10 prepares a salient so that a crevice may be generated between the motor clamp face of a wiring box, and the motor tie-down plate of a motor, and was made to radiate heat about the motor. Invention indicated to the claim 12 is the bill transport device which made the motor supporter the taper [ with a large opening edge ] section with the narrow back in addition to a claim 9 or the composition of 11.

[0013] Invention which indicated to a claim 13 is the bill transport device installed in the game store equipped with the conveyance path section conveyed from an upstream to a downstream where a bill is pinched, and the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section, and is the bill transport device carry out having prepared the bill guide of the shape of a slot which guides near the soffit of a bill to the conveyance path section as the feature.

[0014] Invention which indicated to a claim 14 is the bill transport device which is a bill transport device installed in the game store equipped with the conveyance path section conveyed from an upstream to a downstream where a bill is pinched, and the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section, and carries out [ having prepared the exhaust port to which a pellet etc. can fall in a part for the point of a conveyance path, and ] as the feature.

[0015] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 15 has pinched the bill, While preparing a cavity in the side peripheral surface of the pressure-welding roller which is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section, and is formed in the conveyance path section. It is the bill transport device characterized by pinching the bill which builds the pressure-welding roller concerned over an endless flat belt, builds the pulley corresponding to the above-mentioned pressure-welding roller over an endless round belt, is made to carry out the pressure welding of the above-mentioned endless flat belt and the endless round belt, and is conveyed.

[0016]

[Embodiments of the Invention] Hereafter, the operation gestalt of this invention is explained based on a drawing. drawing 1 shows 1 operation gestalt of the \*\*\*\* type (every two game bases -- between bases -- or the ball rental machine is arranged above the base) bill transport device (bill conveyance unit) 10 drawing 2 shows 1 operation gestalt of the bill transport device (bill conveyance unit) 10 base type [ all ] (every one game base -- between bases -- or the ball rental machine is arranged above the base) In addition, in the following explanation, when the bill transport device 10 is called, the bill conveyance unit for connecting more than one and constituting the whole bill transport device shall be shown.

[0017] The bill transport device 10 of these operation gestalten consists of a unification conveyance mechanical component 100 and the conveyance path section 200. the conveyance path section 200 -- from the base case 210 and the opening-and-closing case 220 -- changing -- the nose of cam -- joint -- the member 300 is attached And the whole bill transport device which connects two or more above-mentioned bill transport devices 10, and is arranged in the island of a game store is constituted. In addition, the opening-and-closing case 220 is attached through locking equipment 5, it is constituted so that it cannot open and close recklessly, and it is raising security.

[0018] each bill transport device 10 is arranged so that the unification conveyance mechanical component 100 may usually become the position in which the bill S2 fed into the ball rental machine Q of both sides is acceptable to the space by the side of the tooth back of the game base P of two trains arranged back to back horizontally -- having -- joint -- it connects with the next bill transport device 10 through a member 300 And more than one are connected so that it may become the length corresponding to the length of the island of a game store.

[0019] As shown in drawing 4 , the unification conveyance mechanical component 100 incorporates the bill S1 sent out from the bill transport device 10 of an upstream, and the bill S2 fed into the ball rental machine Q, and sends it out to the conveyance path section 200. the upstream marginal part around the lengthwise slot 112 where this unification conveyance mechanical component 100 established the bill possible [ passage ] on the side attachment wall 111 to which the frame F which carried out division formation counters the shape of a hollow rectangle -- the 1st acceptance guide -- a member 120 -- forming -- the downstream marginal part of a slot 112 -- the 2nd acceptance guide -- a member 130 is formed these acceptance guides -- a member 120,130 is formed in the above-mentioned frame F and one by synthetic resin

[0020] for example, it is shown in drawing 17 and drawing 18 -- as -- the 1st acceptance guide -- a member 120 With 1st path formation Itabe 121 for forming the 1st path A which receives and guides the bill S1 from the bill transport device 10 of an upstream In order to form the 2nd path B which was formed successively in this 1st path formation Itabe's 121 pars intermedia and which receives and guides

the bill S2 from the ball rental machine Q of the side, It has 2nd path formation Itabe 122 who curved, and this 2nd path formation Itabe's 122 end face is forming successively at the marginal part of a slot 112.

[0021] the 1st acceptance guide — the member 120 inclines so that 1st path formation Itabe's 121 upstream edge may open slightly toward an upstream, and they are formed successively at the marginal part of the bill entrance 113 of Frame F where this edge constitutes the unification conveyance mechanical component 100

[0022] Thus, since it will show around in the direction right as it is even if the nose of cam where the bill S1 curled hits if it is made the taper configuration which opens small 1st path formation Itabe's 121 upstream edge, it is lost that bill plugging occurs in the bill entrance 113 neighborhood.

[0023] and the frame F — setting — the 1st acceptance guide — the 1st path A which receives and guides the bill S1 from the bill transport device 10 of an upstream by 1st path formation Itabe 121 of a member 120 is formed It comes to form successively path formation Itabe 132 who curved corresponding to 2nd path formation Itabe 122 of a member 120 on Frame F. on the other hand — the 2nd acceptance guide — a member 130 — the 1st acceptance guide — the acceptance guide of the above 1st — 2nd path formation Itabe 122 of a member 120, and the 2nd acceptance guide — the 2nd path B which receives and guides the bill S2 from a ball rental machine Q by path formation Itabe 132 of a member 130 is formed

[0024] and it is shown in drawing 17 and drawing 18 — as — the 2nd acceptance guide — path formation Itabe 132 of a member 130 is prolonged for a long time to a downstream, and the protrusion of him is attained into the conveyance path section 200 to it moreover, the 1st acceptance guide — downstream point 120a of a member 120 — the 2nd acceptance guide — the installation section by which the downstream of a member 130 is deep and until installation was carried out is constituted

[0025] Thus, a possibility of downstream point 120a being installed deep, and interfering in the bill S1 by which it came to the bill S2 which is standing by in the state where it advanced until it reached at path formation Itabe's 132 nose of cam from the ball rental machine Q in the 2nd path B, since it was very narrow from the 1st path A, and producing bill plugging disappears. Moreover, in order to progress the 1st narrow path A, even if Siwa etc. is in a bill S1, it can go on straightly as it is, without producing bill plugging.

[0026] and — this invention — the acceptance guide of the above 1st — a member 120 and the 2nd acceptance guide — a member 130 is really cast by synthetic resin with Frame F, and division composition of the frame F concerned is carried out namely, — the operation gestalt shown in the drawing — the top frame Fu and a bottom acceptance guide — the bottom block BU which really cast Members 120u and 130u, and the bottom frame Fl and a bottom acceptance guide — it has divided into the bottom block BL which really cast Members 120l. and 130l.

[0027] For example, the unification conveyance drive in the bill transport device 10

concerning this invention is constituted combining the top frame Fu and the bottom frame Fl which were constituted as shown in drawing 13 or drawing 18 . this time — between the top frame Fu and the bottom frames Fl — 1st path formation Itabe's 121 horizontal direction — the notch-like opening 124 and the 2nd acceptance guide — the notch-like opening 133 is formed in the horizontal direction of path formation Itabe 132 of a member 130 And the drive rollers 160a and 160b mentioned later, the endless round belt 161, and the friction ring 162 will advance into this opening 133.

[0028] According to the unification conveyance mechanical component 100 which carried out division composition as mentioned above, while part mark decrease remarkably, part cost and assembly cost are reducible. moreover, an acceptance guide — the position of a member can offer the product of uniform quality in regularity And according to an error with a group etc., since neither a level difference nor a crevice occurs, the cause of bill plugging can be eliminated.

[0029] As shown in drawing 20 , the motor unit 140 is being fixed to the bottom wall of Frame F. The motor unit 140 consists of the wiring box 141 and motor 142 which were really cast by synthetic resin. The wiring box 141 has the positioning boss 144 grade while having the boss section which accepts the driving shaft of a motor 142, and the supporters 146a and 146b which accept horizontally the flanges 145a and 145b of the tie-down plate 145 of a motor 142, and support them on the undersurface. That is, opening of the supporters 146a and 146b formed in the couple is carried out horizontally, and when an opening edge is large, the back is narrow, it is easy to accept the flanges 145a and 145b of the motor tie-down plate 145 and it once accepts, they are caught and it has been hard coming to escape them with the operation form shown in drawing 21 . Moreover, they are made hard to form salient 147 in the inside side of Supporters 146a and 146b, and to escape from them by this salient 147, with the operation form shown in drawing 22 , as Flanges 145a and 145b are pressed. In addition, since this salient 147 can be arranged to a point or a line and serves as a flange 145, a point contact, or a line contact, the resistance at the time of attachment is cut down.

[0030] The fixed means of a motor 142 is prepared in the wiring box 141. This fixed means forms the fixed button 148 energized by the energization means, for example, a spring, possible [ frequent appearance ] from the base of the wiring box 141 in the position which contacts the side edge of the tie-down plate 145 of a motor 142, and it prevents rotation of the motor tie-down plate 145, and after the fixed button 148 concerned has projected from a base, it constitutes it so that rotation of the motor tie-down plate 145 may be permitted in the state where of the fixed button 148 retreated in the wiring box 141. Moreover, the above-mentioned fixed button 148 may really be cast by synthetic resin with the wiring box 141 through a notch in part, and the elasticity of synthetic resin may be used for an energization means.

[0031] Therefore, the flanges 145a and 145b of the motor tie-down plate 145 make it rotate so that it may insert in Supporters 146a and 146b, pushing in the fixed button 148 of a fixed means in the wiring box 141, while inserting the axis of rotation

of a motor 142 in the boss of the wiring box 141, in order to fix a motor 142 to the wiring box 141. If this rotation is completed and Flanges 145a and 145b stop to Supporters 146a and 146b, the fixed button 148 will project and it will stop to the side edge of a tie-down plate 145. Therefore, return rotation is prevented and the tie-down plate 145 of a motor is fixed to the wiring box 141. What is necessary is on the other hand, to rotate the motor tie-down plate 145, where the fixed button 148 is pushed in, to solve a stop with Supporters 146a and 146b, and just to draw out, when removing a motor 142.

[0032] It is good for the above motor units 140 to use a synchronous motor.

Compared with the geared motor currently used for the conventional bill transport device 10, since a synchronous motor does not have gearing, it is small and cheap. And if a synchronous motor is used, since the height of the motor itself will become low, the height of the whole bill transport device 10 can be constituted low, and the installation in narrow Shimauchi becomes easy. Moreover, if it is in this invention, unlike the transfer gear which only tells rotation of a motor, it is slowing down conventionally with the gearings 17, 18, and 19 which mention later.

[0033] And according to the motor unit 140 of the above composition, exchange of a motor 142 is also very easy and it is very effective in the work in the narrow building envelope which work was completed without using tools, such as a driver, and was left behind to the tooth-back side of the game base P.

[0034] On the other hand, like other operation forms shown in drawing 23, if a crevice is formed between the motor tie-down plate 145 and the base of the wiring box 141 and it is made for a tie-down plate 145 and a base not to stick by forming a plinth 149, heat dissipation of a motor 142 becomes good and can prevent heating of a motor 142. Moreover, you may make it form a crevice by the slot between the bases of a tie-down plate 145 and the motor tie-down plate 145.

[0035] One driving shaft 170 (refer to drawing 8) is attached free [ rotation to a perpendicular direction ] between bottom wall 110b of the frame F which constitutes said unification conveyance mechanical component 100, and upper wall 110a (i.e., between the bottom block BU and the bottom blocks BL). Moreover, in the lower part of a bottom wall, the gearing 17 which prepared in the soffit of a driving shaft 170, and the gearing 18 of the driving shaft of a motor 142 and the gearing 19 of a driving shaft 173 mesh, and rotation of a motor 142 is transmitted to driving shafts 170 and 173.

[0036] Moreover, between upper wall 110a of the bottom block BU, and the bottom wall of the bottom block BL, two driven shafts 171 and 172 are attached free [ rotation ] perpendicularly similarly, and a driven shaft 171 rotates at the same speed in the same direction as a driving shaft 170 [ above upper wall 110a ] with the belt 175 with which it was equipped between pulley 174a of the diameter of the same fixed to the driving shaft 170 and the driven shaft 171, and 174b. Moreover, the gearings 176 and 177 of the same number of teeth which geared mutually are being fixed to the driving shaft 170 and the driven shaft 172, and a driven shaft 172

rotates at the same speed to an opposite direction (refer to drawing 10 ).

[0037] a driven shaft 171 is shown in drawing 8 — as — the 1st acceptance guide — a member 120 — small — the side-attachment-wall 111a side — being located — the acceptance guide of pars intermedia, i.e., the 1st, — the pulley 150 is being fixed in the position corresponding to the horizontal opening 124 of 1st path formation Itabe 121 of a member 120 The pulley 150 had the circular sulcus in the center of the vertical direction, and the endless round belt 151 which becomes this circular sulcus from friction objects, such as rubber, is attached in the state where it projected to the method of outside, and has projected it slightly in the 1st path A. In addition, an annular ring etc. is attached in a pulley 150 if it is in the bill transport device 10 base type [ all ]. In addition, even if it is supported to revolve by the bearing material (not shown) with which the bearing material mounting hole 179 established on Frame F was equipped, it gets down and the aforementioned driving shaft 170 is attached to the driven shaft 171, 172 besides the above, it is the same.

[0038] This is countered and the pressure-welding roller 153 which has a friction object on a periphery is attached in the roller base 152 fixed to side-attachment-wall 111b of the bottom block BL which constitutes the bottom half portion of Frame F with the shaft 154 free [ rotation ]. Since this shaft 154 is energized by energization means (not shown), such as a spring, to the pulley 150 side, to the endless round belt 151 of the pulley 150 which carries out a rotation drive at the 1st path A, the pressure welding of the pressure-welding roller 153 is carried out, and it rotates it. For this reason, the bill S1 sent out from the bill transport device 10 of an upstream is \*\*\*\*(ed) and incorporated at the 1st path A between the endless round belt 151 of a pulley 150, and the pressure-welding roller 153.

[0039] a driving shaft 170 — the 2nd acceptance guide of the 2nd path B — the position corresponding to [ it is located in the method of outside more slightly than path formation Itabe 132 of a member 130, and ] the opening 133 by the side of the pars intermedia 132 of the vertical direction, i.e., path formation Itabe, — setting — drive roller 160a — the inside of the 2nd path B — projection — it is fixed in the state the bottom This drive roller 160a is equipped with the friction ring 162, and the delivery roller 164 energized by means of a spring contacts this friction ring 162. In addition, this delivery roller 164 is attached in the wearing board 127 with which the wearing presser foot stitch tongue 125 formed in the bottom block BU and the bottom block BL is equipped free [ rocking ], and will be in the state where it projected from the opening 124 formed between the bottom block BU and the bottom block BL (refer to drawing 19 ).

[0040] For this reason, with this operation form, since it is pushed against the friction ring 162 and pinching conveyance is carried out with the above-mentioned delivery roller 164, it becomes certain incorporating the bill S2 sent out from the ball rental machine Q at the 2nd path B. Therefore, conventionally, since it becomes a bill and Siwa without the waist and has become accordion-like, even if it is the bill which cannot be incorporated, with equipment, \*\*\*\*\* can be played certainly



possible.

[0041] Moreover, with the operation form of illustration, the acceptance guide 126 made to approach to drive roller 160a which connected the termination of the 2nd conveyance path B to the driving source is formed in the unification conveyance mechanical component 100 which the 1st conveyance path A which carries out pinching conveyance of the bill S1 from the upstream, and the 2nd conveyance path B which conveys the bill S2 from a ball rental machine Q join. That is, with this operation form, the acceptance guide 126 which projects in the shape of a rib towards the peripheral face of the above-mentioned delivery roller 164 and the contact of the endless round belt 161 is formed. This acceptance guide 126 counters the drive rollers 160a or 160b, and is prepared in the couple while it is formed in said wearing board 127 in one and is located in the upper and lower sides of the delivery roller 164.

[0042] Without according to the above acceptance guides 126, the nose of cam of a bill S2 breaking, even if it obtained from the ball rental machine Q with the noses of cam of the bill S2 sent out at the 2nd conveyance path B and has curled, the bill S2 concerned can be sent, and it can guide in the direction of a contact of a roller 164 and the endless round belt 161 certainly, and can send to it, and meal 5 \*\* of a roller 164 can be made good. That is, the bill S2 sent in from the ball rental machine Q can be made to certainly join to the conveyance path section 200.

[0043] moreover, the above — the same — the 2nd driven shaft 172 — the 2nd acceptance guide of the 2nd path B — path formation Itabe 132 of a member 130 — small — the method of outside — being located — \*\*\*\* — the same height as the 1st driven shaft 171 — the 2nd path B — projection — drive roller 160b is being fixed in the state the bottom And the friction ring 162 which consists of friction objects, such as rubber, is attached in the circular sulcus of drive roller 160b, and the friction ring 162 is projected to the 2nd path B. and the friction ring 162 — countering — the delivery roller 164 — a spring — minding — the 1st acceptance guide — it is attached in the state where it projected from the front end side opening 124 of a member 120 For this reason, with the delivery roller 164 and the friction ring 162, by the completely same principle as the above, the bill S2 sent out from the ball rental machine Q is pinched certainly, and is incorporated.

[0044] The gear covering 180 is attached in upper wall 110a of the frame F which constitutes a unification conveyance driving gear. The stop section of the locking equipment 5 which inhibits opening of the opening-and-closing case 220 of the bill transport device 10 of an upstream projects, is prepared, and engages and releases the stop hole of this soma 52 at the upstream of this gear covering 180. Moreover, at the nose of cam of a downstream, the upper surface of the upstream edge of the opening-and-closing case 220 is pressed down, and the piece of a stop accomplished so that removal of this opening-and-closing case 220 might be regulated is formed. In addition, if it is in the \*\*\*\* type form bill transport device 10 shown in drawing 1, like the above-mentioned piece of a stop, the piece of a stop

pressed down the upper surface of the opening-and-closing case 220 of the conveyance path section 200 of an upstream, and has regulated attachment and detachment of this opening-and-closing case 220.

[0045] On the side attachment wall 111 of the bottom block BL which constitutes the lower part portion of the frame F of the unification conveyance mechanical component 100, as shown in drawing 13 or drawing 18, the installation stationary plate 115 protrudes on one, fixes the base case 210 which constitutes the conveyance path section 200 in this installation stationary plate 115, and constitutes the bill transport device 10.

[0046] The conveyance path section 200 consists of a base case 210 which consists of 1st base case 210a and 2nd base case 210b attached in this 1st base case 210a free [ opening ], and an opening-and-closing case 220 attached in the upper part side of this base case 210 free [ attachment and detachment ], as drawing 3 shows. In addition, the opening-and-closing case 220 is not drawn on drawing 3.

[0047] As shown in drawing 3, drawing 5 or drawing 24, etc., the pulley rail 230 and the plinth rail 233 which were formed in the shape of a cross-section \*\*\*\* KO character are horizontally prepared in the inside of side-attachment-wall 211a of 1st base case 210a, and are attached in it in the state of the cantilever free [ rotation of two or more pulleys 231 ] with the shaft 232 of the vertical direction which stood up from the plinth rail 233 between finish plate 230a and underplate 230b which constitute this pulley rail 230. And the drive roller 190 of the driving shaft 173 in the aforementioned unification conveyance mechanical component 100 and each pulley 231 of 1st base case 210a are built over the endless round belt 161.

[0048] And molding really constitutes the above 1st base case 210a of structure by synthetic resin. Therefore, it is not necessary to attach each part material separately with a screw etc. like elegance before, and drastic curtailment of the number of assemblers is possible. And since the error at the time of with a group is not produced, either, it becomes the product by which quality was stabilized.

Moreover, since part mark also decrease sharply, management etc. becomes easy.

[0049] Moreover, as shown in drawing 25, the side of a pulley 231 is made into the shape of a taper. That is, a support side is formed in a minor diameter for free one end at a major diameter. Thus, if it forms, the substitute of the endless round belt 161 will become very easy conjointly with said cantilever structure.

[0050] 2nd base case 210b attached in the above 1st base case 210a free [ opening and closing ] on the other hand is also really cast by the following composition by synthetic resin. That is, in the pulley rail 230 of 1st base case 210a, and the height which counters, the roller rail 260 is formed in the inside of side-attachment-wall 211b of 2nd base case 210b. With the shaft 262, free [ rotation ], it is energized with a spring 263 to a pulley 231 side, and each pulley 231 and each pressure-welding roller 261 which counters are attached in this roller rail 260.

[0051] The pressure welding of the pressure-welding roller 261 by the side of 2nd

base case 210b is carried out to the endless round belt 161 of each pulley 231 by the side of 1st base case 210a in this way. For this reason, from thickness, the bill sent out from the unification conveyance mechanical component 100 is pinched by the endless round belt 161 and the pressure-welding roller 261, and is conveyed smoothly.

[0052] And pulley 231a and pressure-welding roller 261a near the unification conveyance mechanical-component 100 side are arranged so that it may be sent out from a ball rental machine Q and may be located in a downstream more slightly than the nose-of-cam position of the bill S2 of a standby state. For this reason, the endless round belt 161 of pulley 231a by the side of the best style and pressure-welding roller 261a will not be covered by the bill S2 from the ball rental machine Q of a standby state. Therefore, since the bill S1 conveyed from the 1st path A is certainly pinched by the above-mentioned endless round belt 161 and pressure-welding roller 261a, bill plugging does not arise.

[0053] In addition, while setting suitably the wave type equipped with a loose curved-surface configuration while making 260d of conveyance sides of the roller rail 260 widen in the fixing-with-a-spindle position of the pressure-welding roller 261 and forming an interval, it was made to \*\*\*\* through rapid step 260e with this operation form in the position beyond the pressure-welding roller 261. Even if it is the bill which the nose of cam curled and turned to the pressure-welding roller 261 side, when it is not involved in the pressure-welding roller 261 and this pressure-welding roller 261 is overcome, noise stops for this reason, occurring.

[0054] Moreover, with this operation form, as shown, for example in drawing 6, the edge of the upstream of the roller rail 260 was set to cut side 260a, and guidance side 260b following this cut side 260a was formed in end face side 260c of the roller rail 260, and \*\*\*\* parallel, and was connected to the 260d of said conveyance sides.

[0055] According to the accession department of the above roller rails 260, even if it is the bill with which the nose of cam curled, it is not entered and got blocked in a crevice. moreover, the joint of the adjoining bill transport device 10 — even if the distance which overlaps the member 300 is short, since a bill can be certainly guided to the conveyance path section 200, bill plugging does not occur in order [ and ] to make it overlap — joint — since the piece 301 of projection prepared in a member 300 can be formed small, there are few amounts of projection and handling is easy

[0056] Furthermore, with this operation form, the spring 263 which energizes the above-mentioned pressure-welding roller 261 is made into what has a comparatively weak elastic force. For this reason, even if the waist is strong and Yamagata is conveyed toward the pressure-welding roller 261 like [ at the time of folding a new note in two ], the pressure-welding roller 261 can miss Yamagata and there is no bill plugging which occurs for this reason.

[0057] In the bill transport device 10 concerning this invention, the endless round belt 161 for a conveyance drive can also be formed in the 2nd base case 210b side which is an opening side. That is, as shown in drawing 26 or drawing 28, while

forming the pulley rail 230 in 2nd base case 210b, a round belt 161 is stretched to each pulley 231. Moreover, while forming the coordinated gear 234 in pulley shaft 232' of an edge so that it may coordinate with the unification conveyance mechanical component 100, the interlocking gear 235 which gears on this coordinated gear 234 is formed in the unification conveyance mechanical component 100.

[0058] And when a round belt 161 cuts, it becomes possible to stop every [ which is shown in drawing 28 ] 2nd base case 210b, and trouble made for a game person since it can restore extremely in a short time and the stop time of the bill transport device 10 will turn into an ultrashort time, if it exchanges to the minimum.

[0059] Although the pressure-welding roller 261 is energized with the spring 263 with said operation form so that the pressure-welding roller 261 may carry out a pressure welding to a pulley 231 and a bill can be pinched with a round belt 161, the bill transport device 10 concerning this invention can omit the above-mentioned spring 263.

[0060] Therefore, with the operation form shown in drawing 29 , while carrying out the cavity of the side peripheral surface of the pressure-welding roller 265 to a hard drum type a little, each pressure-welding roller 265 is built over the endless flat belt 266. Since according to such composition a flat belt 266 is pushed by the endless round belt 161, it enters into cavity 265a of the pressure-welding roller 265 a little and repulsive force arises in a flat belt 266 in this state as shown in drawing 29 , Bill S can be pinched.

[0061] Moreover, with this operation form, wall 230' of the pulley rail 230 is circularly bulged in the direction of outside so that a round belt 161 may not contact the wall of the pulley rail 230 (refer to drawing 29 ). Thereby, a construct substitute of the endless round belt 161 can be made easy.

[0062] According to molding, such composition can really by synthetic resin be realized very easily. And by omitting the aforementioned spring 263, drastic curtailment of part mark and drastic curtailment of the number of erectors are attained, and part cost and a labor cost can be cut down sharply. Since the variation in poor attachment of a spring 263 and the press force does not occur, conveyance of a bill is stabilized and a bill transport device without a possibility that bill plugging may occur can be offered.

[0063] the [ 1st base case 210a which constitutes the conveyance path section 200, or ] -- the slot-like bill conveyance guide 270 can be formed in the bottom of 2 base case 210b along with a longitudinal direction The bill with which this bill conveyance guide 270 was pinched by the endless round belt 161 which it is gutter-shaped [ in which the upper part carries out opening ] as shown in drawing 3 , namely, it consisted of a guide wall 271 of the couple which counters, and the bottom plate section 272 which connects the soffit of both the guide wall 271, the lower side of a bill appeared on this bottom plate section 272, and the guide walls 271 and 271 of the above-mentioned couple supported near the soffit, and was

described above, and the

[0064] According to such a bill conveyance guide 270, since the soffit portion of a bill can be guided from both sides, the horizontal recess of a bill can be prevented certainly. In addition, this bill conveyance guide 270 may be formed in 2nd base case 210b by the side of opening, and can also be formed combining both the cases 210a and 210b.

[0065] near [ above ] the edge of the downstream of the bill conveyance guide 270 (i.e., joint) — in the bottom plate section 272 near the edge by the side of a member 300, the opening 273 for discharging a pellet, a foreign matter, etc. is established. The pellet which is the granular cleaning agent used when carrying out washing polish of the pachinko ball, overflowed from the soaping machine, and adhered on the outskirts may mix a pellet in a conveyance path from the opening-and-closing case 220 opened by maintenance check. If this mixed pellet is left, since it will become the cause which causes bill plugging, you have to discharge.

[0066] then, in the bill transport device 10 concerning this invention, a pellet can be discharged efficiently — as position namely, described above, opening 273 is established as an exhaust port near the downstream edge of the bill conveyance guide 270 (refer to drawing 3 ). If the exhaust port is prepared in this position, it can prevent that a pellet etc. invades into the bill transport device 10 of a downstream, and bill plugging can be prevented beforehand.

[0067] The bill repeating installation 400 which sends into the entrance of the unification conveyance mechanical component 100 the bill sent out from the bill injection machine (ball rental machine Q) is made to intervene between a bill injection machine and the unification conveyance mechanical component 100. This bill repeating installation 400 is for aiming at correspondence of \*\*\*\* which changes with game stores, namely, even if the depth of an island differs and the distance of a bill injection machine and the unification conveyance mechanical component 100 differs, it is for sending a bill into the unification conveyance mechanical component 100 certainly.

[0068] Then, this bill repeating installation 400 is equipped with the delivery mechanism 41 in which it has the rotation pulley 410 and the pressure-welding roller 420 of a couple, and a case-cum-the spacer 42 which contains this delivery mechanism 41. The above-mentioned delivery mechanism 41 is equipped with the axis of rotation 412 prepared in the vertical direction of the base object 411 free [ rotation ], the rotation pulley 410 formed in this rotation middle, and the pressure-welding roller 420 energized so that a pressure welding might be carried out to this rotation pulley 410.

[0069] The above-mentioned base object 411 is the member cast by synthetic resin, and it has the connection section 430 of the above-mentioned frame F, and the isomorphism-like connection section 450 in the other end, and it constitutes them so that the base object 411 concerned can be connected one after another while it has the connection 440 in which the fitting connection with the connection section

430 prepared in the end at the frame F of the unification conveyance mechanical component 100 is possible.

[0070] On the other hand, a case-cum-the spacer 42 which can cover the above-mentioned base object 411 is fixable to the side-attachment-wall section of the unification conveyance mechanical component 100. When operating a case-cum-this spacer 42 as a case, while \*\*\*\*(ing) said base object 411 which sends and is equipped with a mechanism 41, the drive pulley 413 is formed on the top-plate section, and it builds over a driving belt 415 between the drive pulleys 414 of the unification conveyance mechanical component 100 ( drawing 10 ). On the other hand, although a pulley etc. is not formed in a case when making it function as a spacer, the tension roller 416 of a driving belt 415 is formed in a top plate ( drawing 30 ). And the bill repeating installation 400 of a desired interval is constituted, combining suitably the above delivery mechanisms 41 and a case-cum-the spacer 42.

[0071] According to the above bill repeating installation 400, it can respond to different \*\*\*\* by combining a single member flexibly, and curtailment of cost and stock of parts become easy. moreover, it can respond also to a sudden specification change immediately — etc. — practical value is very high In addition, that what is necessary is for the tubed spacer 45 just to perform adjustment of the distance with which the interval of a case-cum-the spacer 42 is not filled, no matter the bill injection machine and the unification conveyance mechanical component 100 may be arranged at what interval, they can guide a bill without a crevice.

[0072] furthermore, the joint which constitutes the conveyance path section 200 — in a member 300 and the base cases 210a and 210b, the mounting holes r0, r1, r2, and r3 of two or more sensors R for bill detection and — are established, it chooses suitably and the sensor R for bill detection is attached so that it may correspond to \*\*\*\* of the bill repeating installation 400 This is from the consideration with which it is made for the bill sent in from the upstream of the conveyance path section 200 and the bill sent in from the side by the bill injection machine not to lap in the unification conveyance mechanical component 100. That is, it is for preventing un-arranging [ the number of bills counted when supplied to a bill injection machine, and whose number of bills finally brought together in the stacker do not correspond ]. the narrow operation form of \*\*\*\* specifically shown in drawing 5 and drawing 6 — joint — the mounting hole r0 prepared in the member 300 side was chosen, and Sensor R is formed On the other hand, as shown in drawing 33 , \*\*\*\* spread, with the operation form using the bill repeating installation 400, the mounting hole r1 was chosen and the sensor R of a couple is attached. Thus, the attaching position of Sensor R is moved corresponding to island broadening.

[0073] It attaches in 1st base case 210a fixed to the installation stationary plate 115 of Frame F as described above free [ attachment and detachment of 2nd base case 210b ]. the engagement of the 1st firm attachment metallic ornaments which attached this in the bottom wall of for example, 1st base case 210a — what is necessary is just to make the engagement salient of the 2nd firm attachment

metallic ornaments attached in the lower edge of the side attachment wall of 2nd base case 210b engage with a hole detachably according to such composition — engagement — the engagement salient made to engage with a hole — the supporting point — carrying out — 2nd base case 210b — this engagement — rotation becomes free to 1st base case 210a centering on a hole, and if engagement is removed, 2nd base case 210b is separable In addition, drawing 7 shows the state where it hung down from 1st base case 210a which 2nd base case 210b is not rotating and illustrating exactly.

[0074] In drawing 1 and drawing 2 , the opening-and-closing case 220 is attached in the upper surface of both the attached base case 210 free [ attachment and detachment ]. that is, two or more pins (not shown) prepare in the lower edge of the opening-and-closing case 220 — having — \*\*\*\* — the [ hole 214a of the upper wall of 1st base case 210a, and ] — insertion engagement is carried out from the upper part at hole 214b (refer to drawing 3 ) of the upper wall of 2 base case 210b Moreover, inside the opening-and-closing case 220, the guide wall which guides the upper-limb section of a bill which has the conveyance path section 200 conveyed is prepared.

[0075] Moreover, the opening-and-closing case 220 base [ 1st ] case 210a Reaches, and to form by transparence material is good like 2nd base case 210b. That is, if it is transparence material, even if situations, such as a normal flow of the bill in a conveyance path and bill plugging, will not open the opening-and-closing case 220 from the exterior, it can check by looking.

[0076] the downstream of the conveyance path section 200 — joint — it attaches free [ movement of a member 300 ] joint — a member 300 is equipped with the taper slot 31 which the nose of cam of the bill conveyance guide 270 enters as shown in drawing 9 , and it delivers a bill The above-mentioned taper slot 31 C, i.e., a bill path, narrows width of face gradually toward the downstream, and the above-mentioned taper slot 201 has the beak-like piece 301 of projection in the downstream further. Since the bill transport device 10 of a downstream is overlapped and a bill is held by this piece 301 of projection, the bill transport device 10 of a downstream can be made to incorporate certainly.

[0077] in addition, joint — if it is in a \*\*\*\* type at the end face of the downstream of a member 300 — the hole of the conveyance path section 200 of the bill transport device 10 of a downstream — moreover, if it is in all base types, two or more contact pins 32 for inserting in the hole of the side attachment wall 111 of Frame F have protruded horizontally

[0078] and the bill transport device 10 concerning this invention is shown in drawing 1 and drawing 2 — as — joint — the locking equipment 5 whose fixation or release operation of the opening-and-closing case 220 is attained for a member 300 is formed and the keyhole is established in locking equipment 5 and release of the opening-and-closing case 220 inhibits the key which can be freely taken out and inserted to this keyhole by carrying out insertion operation — having — joint —

\*\*\*\*\* bill transport-device 10 comrades are connected in this state at the same time sliding to the upstream of a member 300 is regulated

[0079] On the other hand, if the above-mentioned suppression state is canceled, removal of the opening-and-closing case 220 will be attained, and 2nd base case 210b which is a part of conveyance path section 200 will be released.

[0080] although the above-mentioned explanation is explanation in the bill transport device 10 base type [ all ] as [ shown in drawing 2 ] — a \*\*\*\* type — setting — joint — what is necessary is just to inhibit opening of the opening-and-closing case 220 with the locking equipment 5 installed in the member 300 side by side In addition, if it is not necessary to install it, and especially locking equipment 5 is in a game store without the need and is not installed, curtailment of an installation cost is possible for it.

[0081] In addition, the composition of the bill transport device 10 of this invention is easily applicable as transport devices, such as the so-called prepaid card which made the medal or the valuable value as money including the coin, and a game medium memorize.

[0082] As mentioned above, although this invention was explained about the operation form of a drawing, this invention is not limited to said operation form, and unless the composition indicated to the claim is changed, it can be carried out suitably.

[0083]

[Effect of the Invention] As explained above, invention indicated to the claim 1 The conveyance path section conveyed from an upstream to a downstream where a bill is pinched, and the bill fed into the bill injection machine It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the above-mentioned conveyance path section join. a unification conveyance mechanical component While showing the bill sent in from the conveyance path section of an upstream to the conveyance path section of a downstream While having the acceptance guide member guided so that the bill sent in from a bill injection machine side may be made to join the conveyance path section from the side and making the above-mentioned unification conveyance mechanical component into block construction Since it accepted with the frame of the unification conveyance mechanical component concerned and the guide member was really cast by synthetic resin, while part mark decrease, an assembly can become easy and can cut down part cost, a labor cost, etc. sharply. Moreover, since an error does not arise at the time of an assembly, the product of the stable quality can be offered.

[0084] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 3 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. It



constitutes from 2 base cases. the [ the 1st base case which cast the conveyance path section by synthetic resin, and ] — in the 1st base case Since the pulley rail and the conveyance rail were prepared in one and the roller rail and the conveyance rail were prepared in one at the 2nd base case, while part mark decrease, assembly work can become easy and can cut down part cost, a labor cost, etc. sharply. Moreover, since an error does not arise at the time of an assembly, the product of the stable quality can be offered.

[0085] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 4 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. between a unification conveyance mechanical component and a bill injection machine The bill repeating installation which sends into the entrance of the unification conveyance section the bill sent out from the bill injection machine is made to intervene. the above-mentioned bill repeating installation It has a case-cum-the spacer which can contain the delivery mechanism and the delivery mechanism concerned of a bill. the above-mentioned delivery mechanism The axis of rotation prepared in the vertical direction of a base object free [ rotation ], and the rotation pulley formed in the middle of this axis of rotation, It has the pressure-welding roller energized so that a pressure welding might be carried out to this rotation pulley. the above-mentioned base object While having the connection in which the fitting connection with the connection section prepared in the end at the frame of the unification conveyance section is possible Have the connection section of the above-mentioned frame, and the isomorphism-like connection section in the other end, and it constitutes so that the base object concerned or a case-cum-a spacer can be connected with \*\*. Since the above-mentioned rotation pulley is connected to the driving shaft of a unification conveyance mechanical component by the driving belt and it was made to carry out a rotation drive, it can respond to different \*\*\*\* by combining a single member flexibly, and curtailment of cost and stock of parts become easy. moreover, it can respond also to a sudden specification change immediately — etc. — practical value is very high

[0086] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 7 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. In the base case which constitutes the conveyance path section, while forming the pulley of the cantilever structure in which the cut side was formed in the upper surface Since attachment and detachment of the conveyance belt over which separates a drive roller and a conveyance belt from a unification transport device, and the above-mentioned pulley is built were made easy, exchange of a belt is quickly

possible and it can stop un-arranging [ of interrupting a game ] to the minimum.

[0087] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 9 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. While making a motor supporter stop the piece of attachment which established the motor supporter which carries out opening, and the motor fixed means constituted possible [ frequent appearance ] in the direction of the side, and was installed in the wiring box furnished with the motor of a driving source at the motor Since the motor was fixed with the motor fixed means of a projection state, the exchange work of a motor becomes remarkably easy. Moreover, since a tool is not needed, also in narrow Shimauchi's space, quick work is possible.

[0088] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 13 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. Since the bill guide of the shape of a slot which guides near the soffit of a bill to the conveyance path section was prepared, a bill can be conveyed with the stable posture and bill plugging can be prevented beforehand.

[0089] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 14 has pinched the bill, It is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section. Since the exhaust port to which a pellet etc. can fall was prepared in a part for the point of a conveyance path, the pellet mixed into the bill transport device can be discharged easily, and the trouble by mixing of a pellet etc. can be prevented beforehand.

[0090] The conveyance path section conveyed from an upstream to a downstream after invention indicated to the claim 15 has pinched the bill, While preparing a cavity in the side peripheral surface of the pressure-welding roller which is the bill transport device installed in the game store equipped with the unification conveyance mechanical component which has a driving source while making the bill fed into the bill injection machine join the above-mentioned conveyance path section, and is formed in the conveyance path section Since the bill which builds the pressure-welding roller concerned over an endless flat belt, builds the pulley corresponding to the above-mentioned pressure-welding roller over an endless round belt, is made to carry out the pressure welding of the above-mentioned endless flat belt and the endless round belt, and is conveyed was pinched, a press spring becomes unnecessary. Therefore, drastic curtailment of part mark and drastic curtailment of the number of erectors are attained, and part cost and a labor cost

can be cut down sharply. Moreover, since the variation in poor attachment of a press spring and the press force does not occur, conveyance of a bill is stabilized and a bill transport device without a possibility that bill plugging may occur can be offered.

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[Translation done.]

**\* NOTICES \***

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2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective diagram showing 1 operation form of the \*\*\*\* type bill transport device of this invention.

[Drawing 2] It is the perspective diagram showing 1 operation form of the bill transport device of this invention base type [ all ].

[Drawing 3] It is the perspective diagram showing 1 operation form in the state where the base case was opened wide.

[Drawing 4] It is outline explanatory drawing showing the specified condition of a bill transport device.

[Drawing 5] It is the front view of the open state which shows the interior of a bill transport device.

[Drawing 6] It is the plan of the open state which shows the interior of a bill transport device.

[Drawing 7] It is the front view showing the inside of the 2nd base case.

[Drawing 8] It is the plan of an important section showing a unification conveyance mechanical component.

[Drawing 9] It is a plan explaining a lower bill guide and a joint member.

[Drawing 10] It is the plan showing a unification conveyance mechanical component and bill repeating installation.

[Drawing 11] It is the front view of the bill repeating installation prepared in the unification conveyance mechanical component.

[Drawing 12] It is the side elevation of the bill repeating installation prepared in the

unification conveyance mechanical component.

[Drawing 13] It is the front view of the frame of the unification transport device which carried out division composition up and down.

[Drawing 14] It is the upstream side elevation of the frame of the unification transport device which carried out division composition up and down.

[Drawing 15] It is the downstream side elevation of the frame of the unification transport device which carried out division composition up and down.

[Drawing 16] It is drawing of longitudinal section of the frame of the unification transport device which carried out division composition up and down.

[Drawing 17] It is a bottom plan view showing the inside of a top frame.

[Drawing 18] It is a plan showing the inside of a bottom frame.

[Drawing 19] It is explanatory drawing of operation in a unification conveyance mechanical component.

[Drawing 20] It is the perspective diagram of 1 operation form of a motor unit.

[Drawing 21] It is the cross section of 1 operation form of a motor unit.

[Drawing 22] It is the cross section of other operation forms of a motor unit.

[Drawing 23] It is the perspective diagram of other operation forms of a motor unit.

[Drawing 24] It is the side elevation of 1 operation form of the conveyance path section.

[Drawing 25] It is the side elevation of other operation forms of the conveyance path section.

[Drawing 26] It is the plan showing other operation forms of the conveyance path section.

[Drawing 27] It is the front view showing the interior in other operation forms of the conveyance path section.

[Drawing 28] It is the front view showing the interior of the 2nd base case same as the above.

[Drawing 29] It is side explanatory drawing showing other operation forms of the conveyance path section.

[Drawing 30] It is flat-surface explanatory drawing of the operation form which combined bill repeating installation.

[Drawing 31] It is transverse-plane explanatory drawing of the operation form which combined bill repeating installation.

[Drawing 32] It is side explanatory drawing of the operation form which combined bill repeating installation.

[Drawing 33] It is the plan of the open state which shows the interior of the bill transport device by other operation forms.

[Description of Notations]

5 Locking Equipment

10 Bill Transport Device

41 Delivery Mechanism

42 Case-cum-Spacer

100 Unification Conveyance Mechanical Component  
120 Acceptance Guide -- Member  
120l. and 130l. a bottom acceptance guide -- member  
120u and 130u a bottom acceptance guide -- member  
121 1st Path Formation Itabe  
122 2nd Path Formation Itabe  
124 Opening  
130 Acceptance Guide -- Member  
132 Path Formation Itabe  
133 Opening  
140 Motor Unit  
141 Wiring Box  
142 Motor  
145 Motor Tie-down Plate  
145a, 145b Flange  
146a, 146b Supporter  
147 Salient  
148 Fixed Button  
150 Pulley  
151 Endless Round Belt  
152 Roller Base  
153 Pressure-Welding Roller  
161 Endless Round Belt  
164 Delivery Roller  
170 Driving Shaft  
171 Driven Shaft  
172 Driven Shaft  
173 Driving Shaft  
180 Gear Covering  
190 Drive Roller  
200 Conveyance Path Section  
210 Base Case  
210a The 1st base case  
210b The 2nd base case  
220 Opening-and-Closing Case  
230 Pulley Rail  
231 Pulley  
233 Plinth Rail  
234 Coordinated Gear  
235 Interlocking Gear  
260 Roller Rail  
261 Pressure-Welding Roller

265 Pressure-Welding Roller  
266 Flat Belt  
270 Bill Conveyance Guide  
400 Bill Repeating Installation  
410 Rotation Pulley  
411 Base Object  
412 Axis of Rotation  
413 Drive Pulley  
414 Drive Pulley  
415 Driving Belt  
416 Tension Roller  
420 Pressure-Welding Roller  
430 Connection Section  
440 Connection  
450 Connection Section  
A Conveyance path  
B Conveyance path  
BL Bottom block  
BU Bottom block  
C Bill path  
F Frame  
FI Bottom frame  
Fu Top frame  
P Game base  
Q Ball rental machine  
R The sensor for bill detection  
r0, r1, r2, — sensor mounting hole  
S Bill  
S1 Bill  
S2 Bill

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[Translation done.]

**\* NOTICES \***

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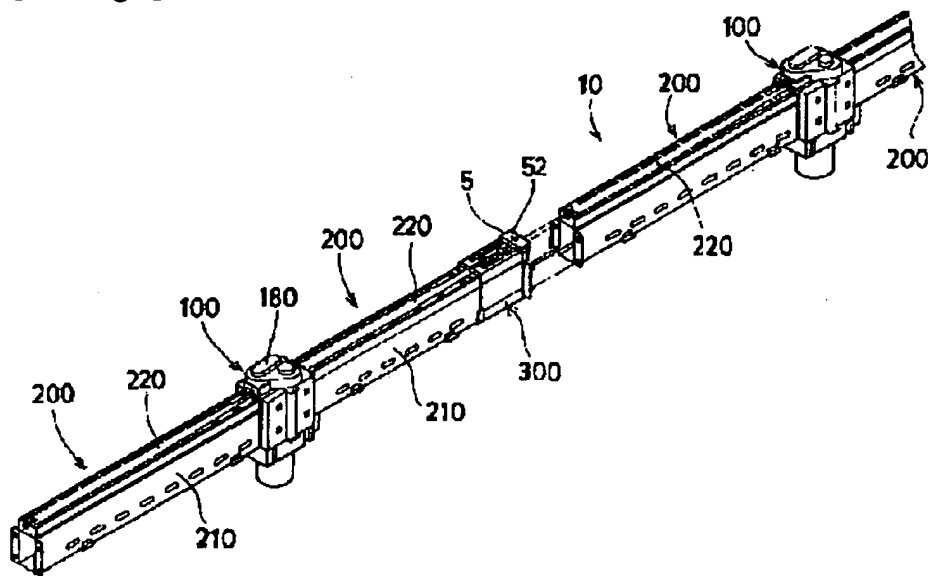
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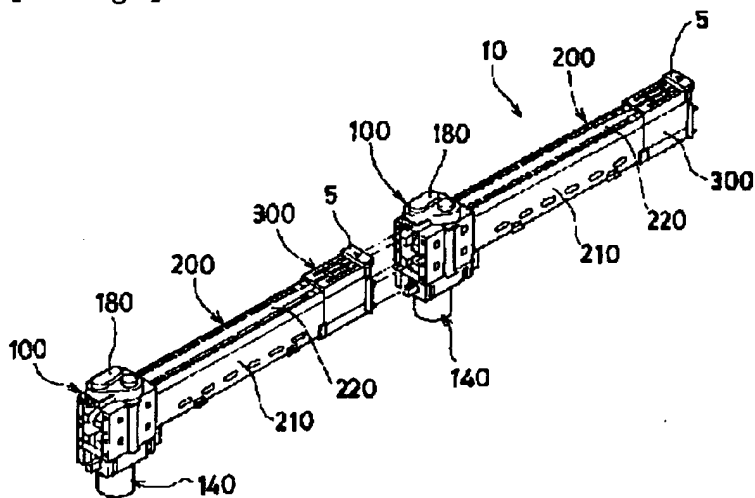
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## DRAWINGS

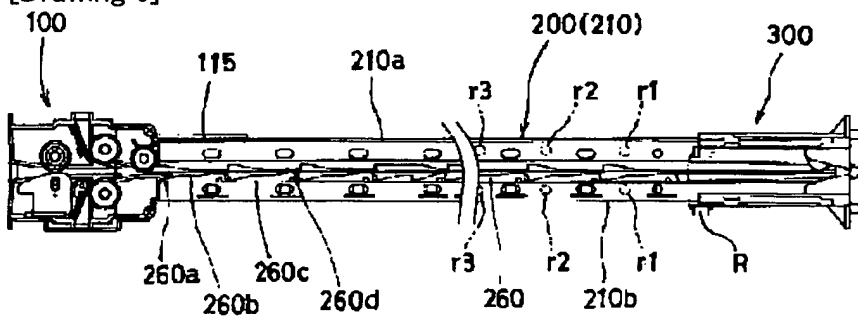
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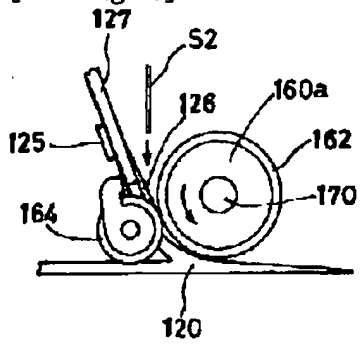
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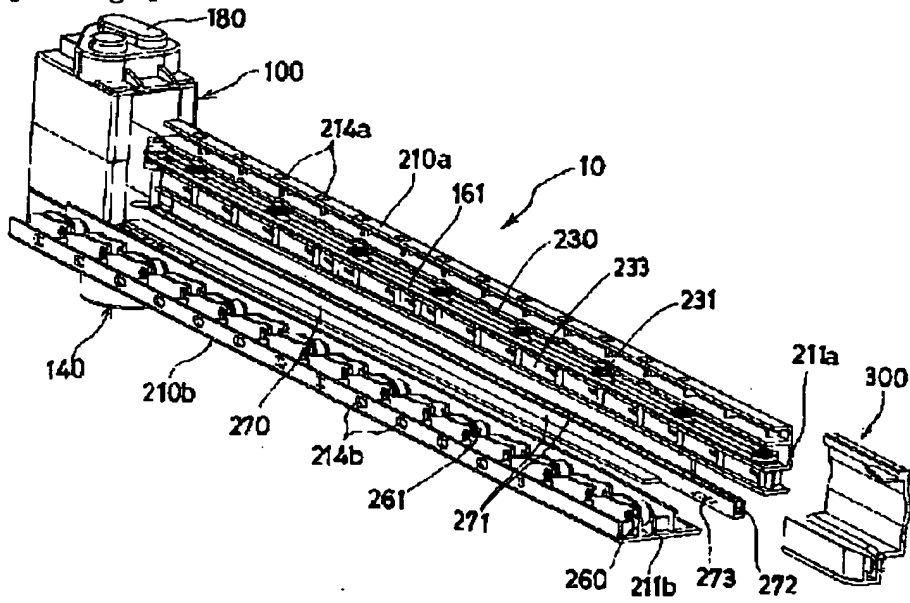
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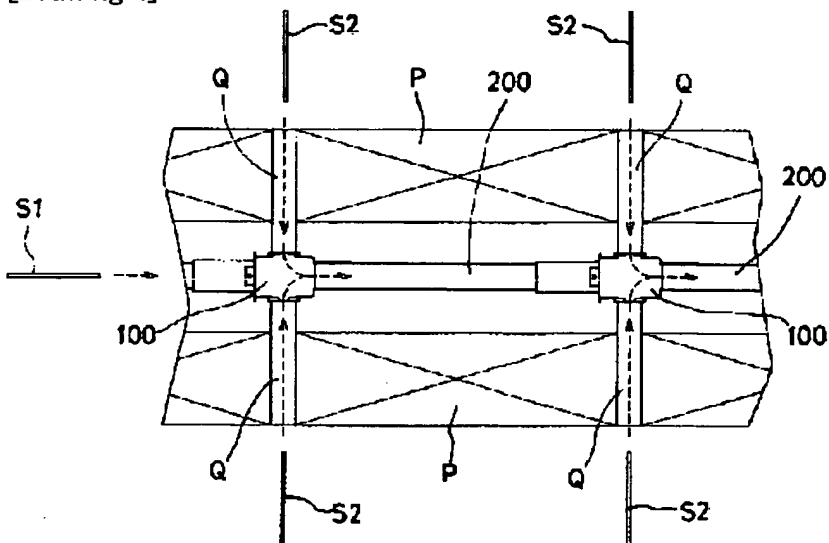
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[Drawing 3]

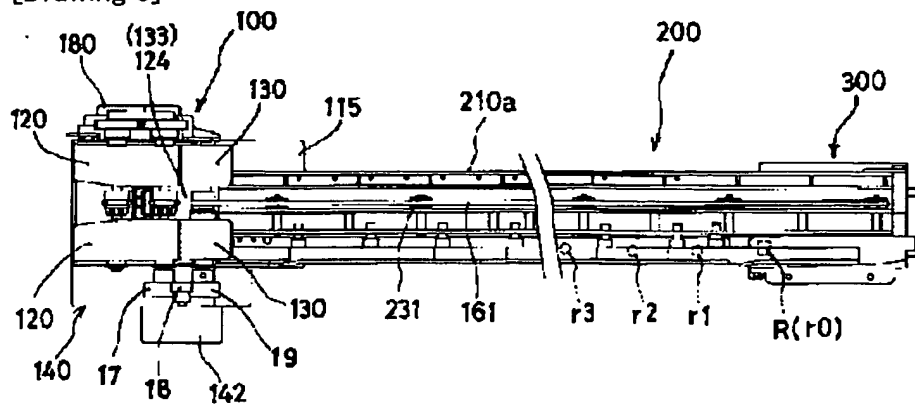


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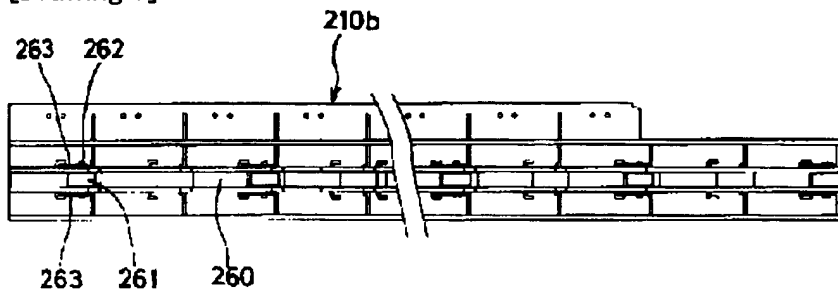




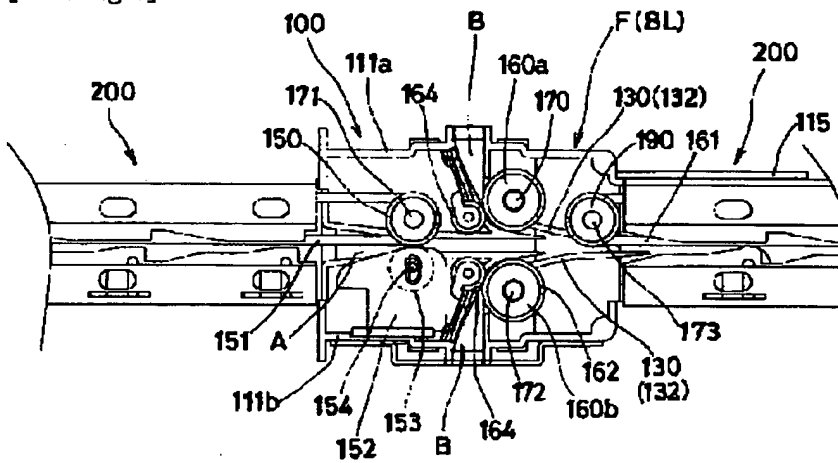
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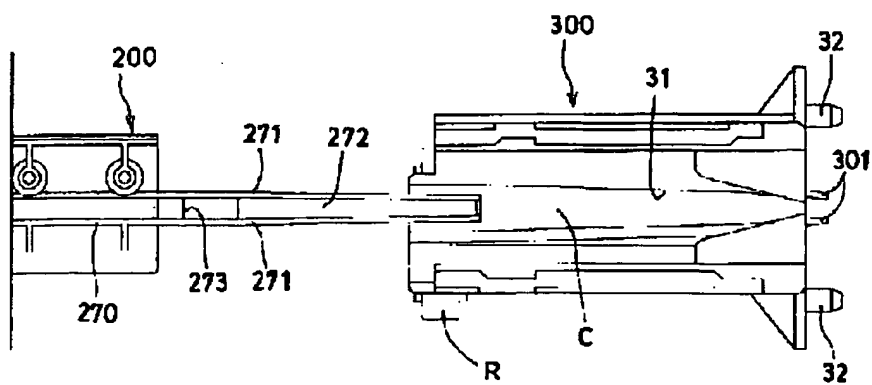
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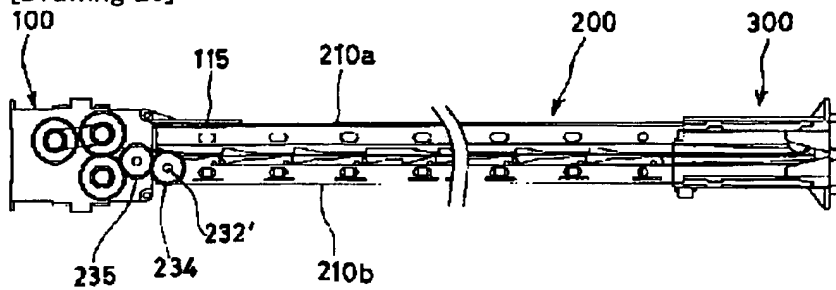
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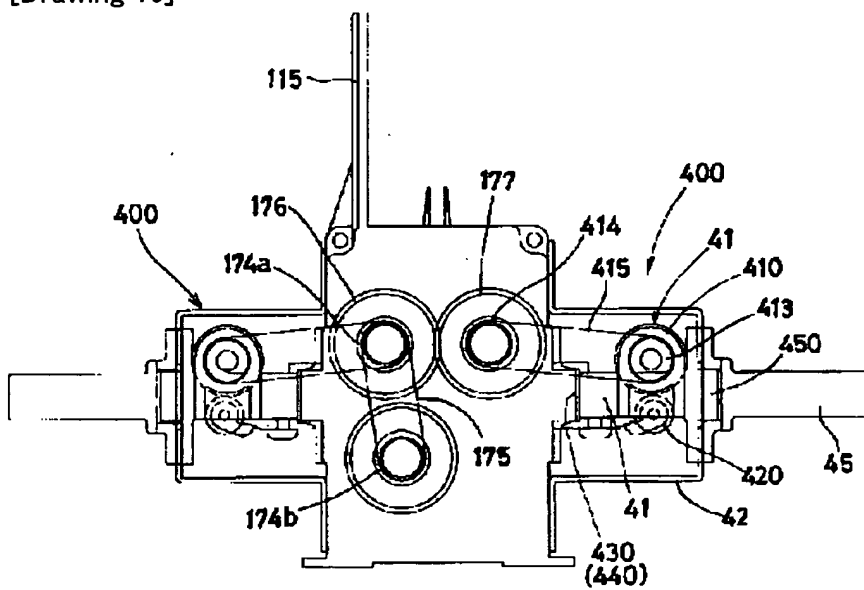
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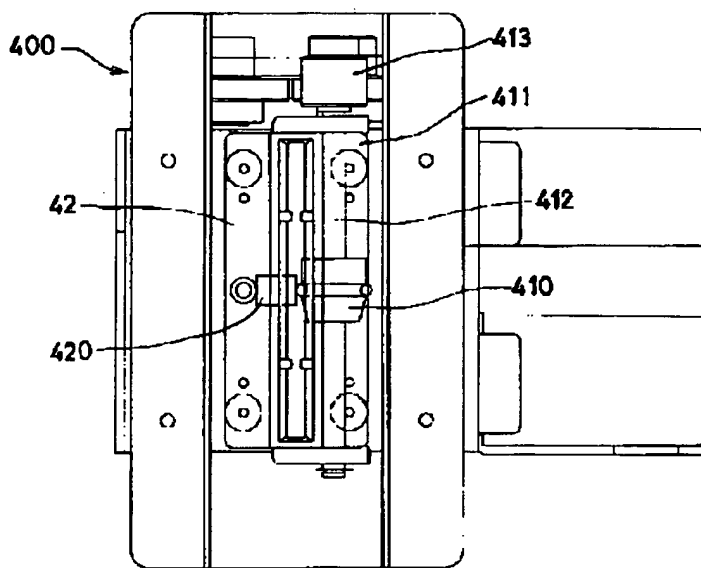
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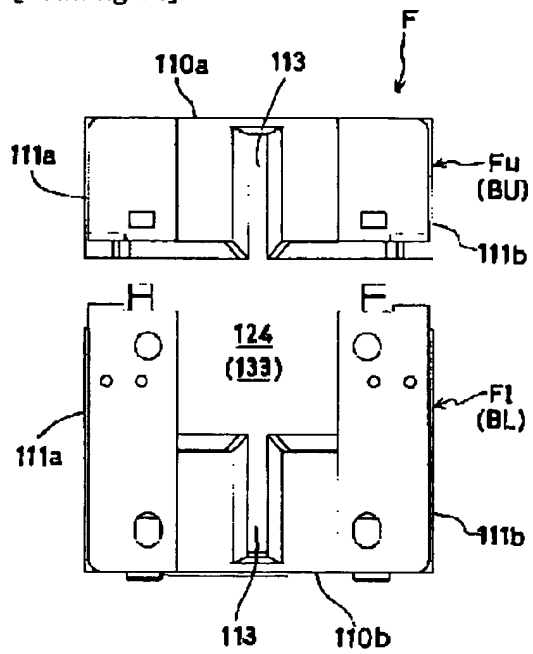
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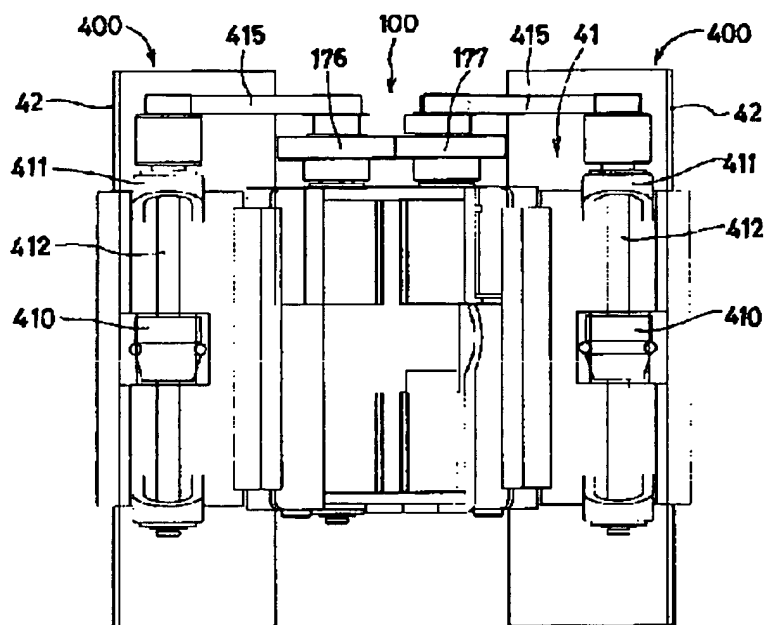
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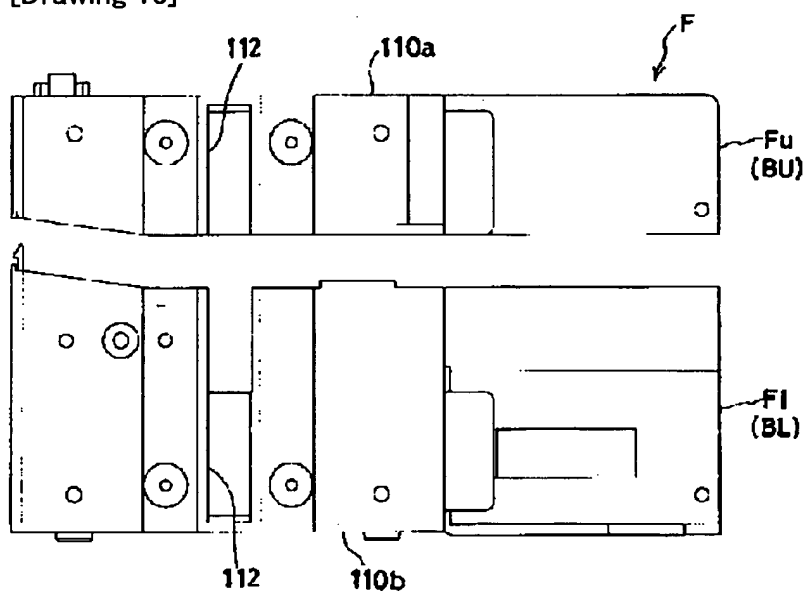
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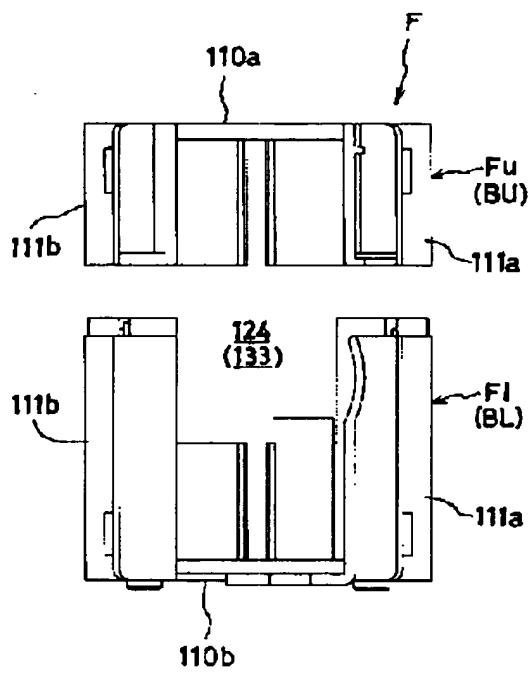
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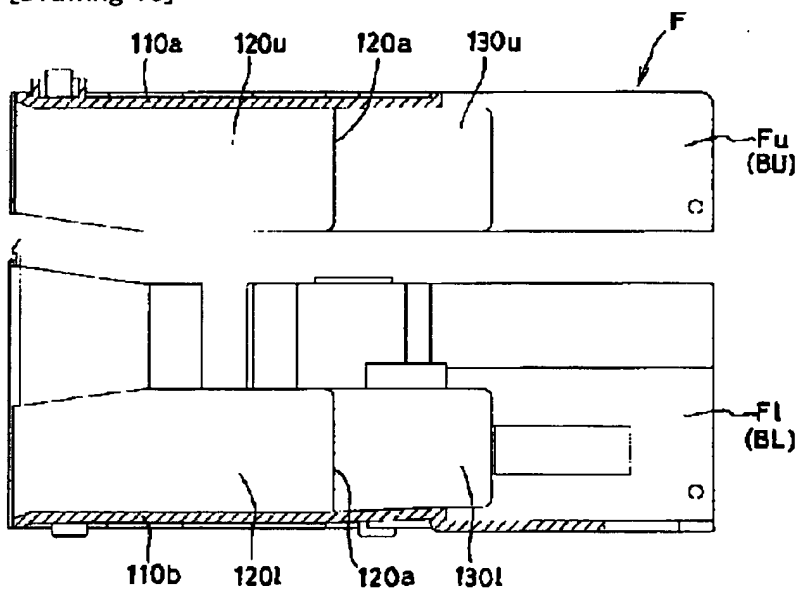
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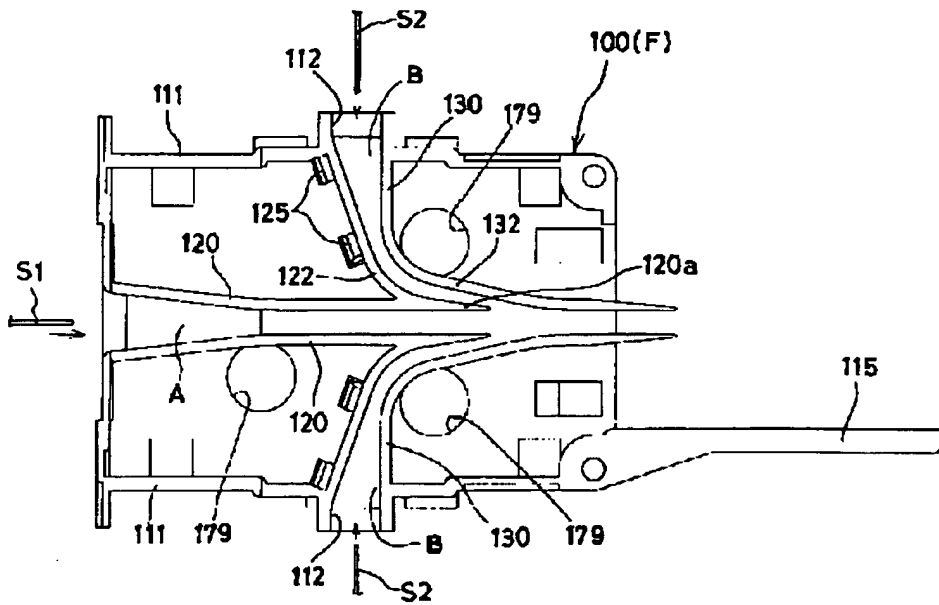
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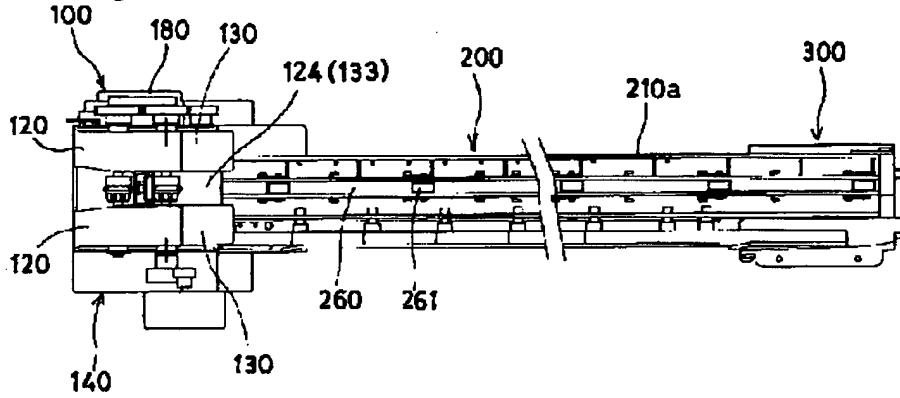
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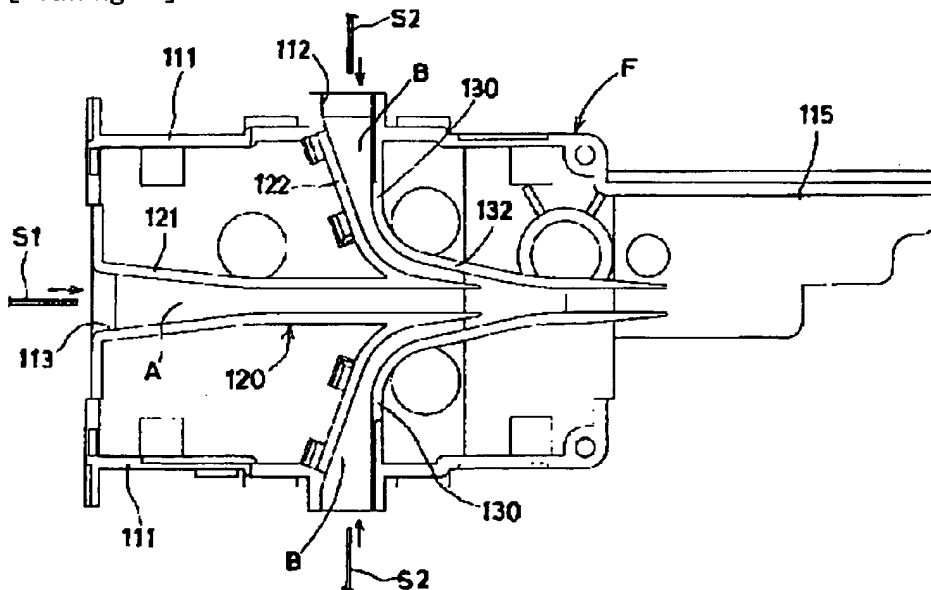
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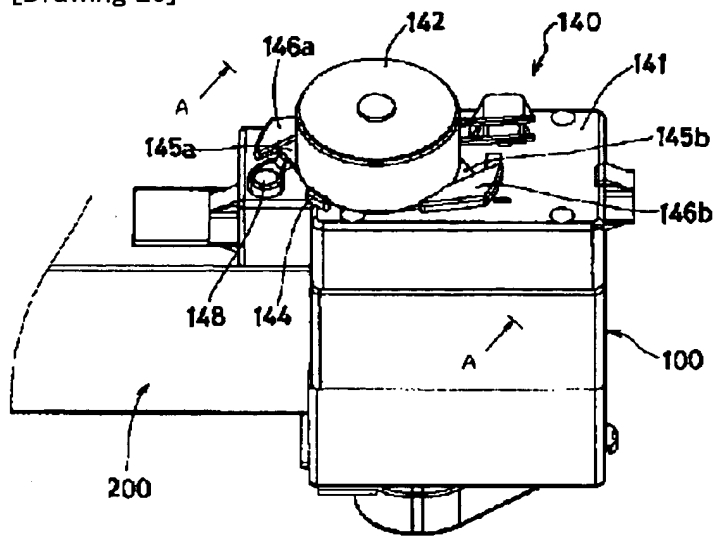
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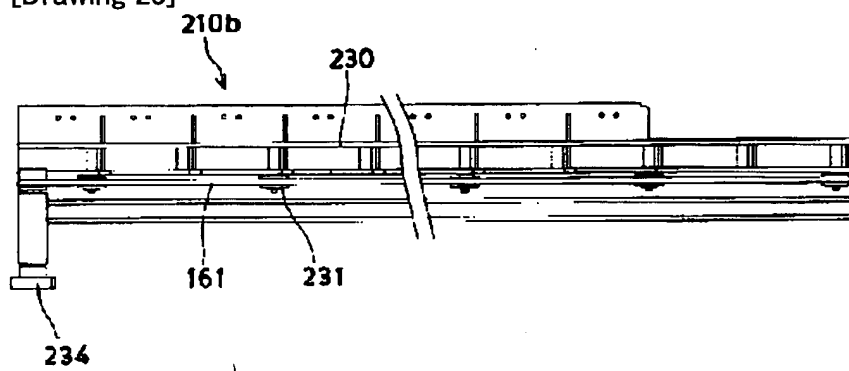
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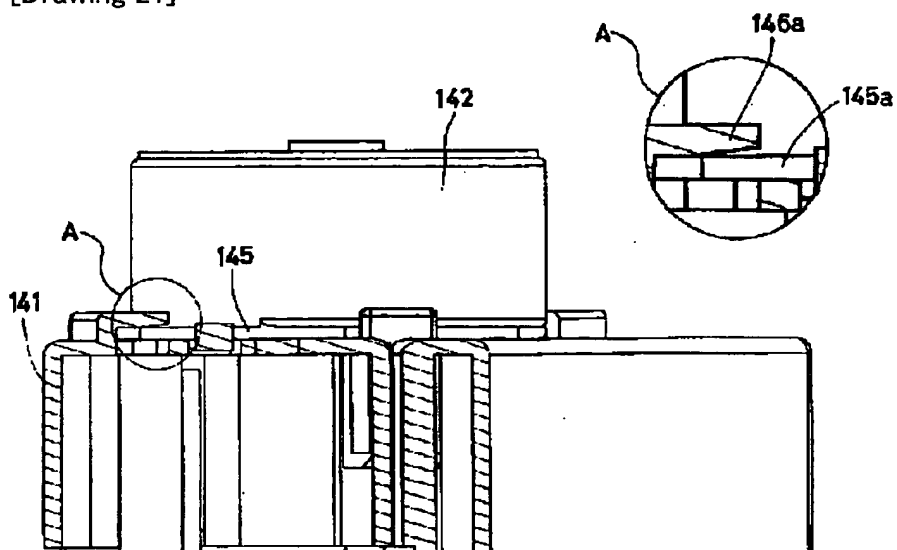
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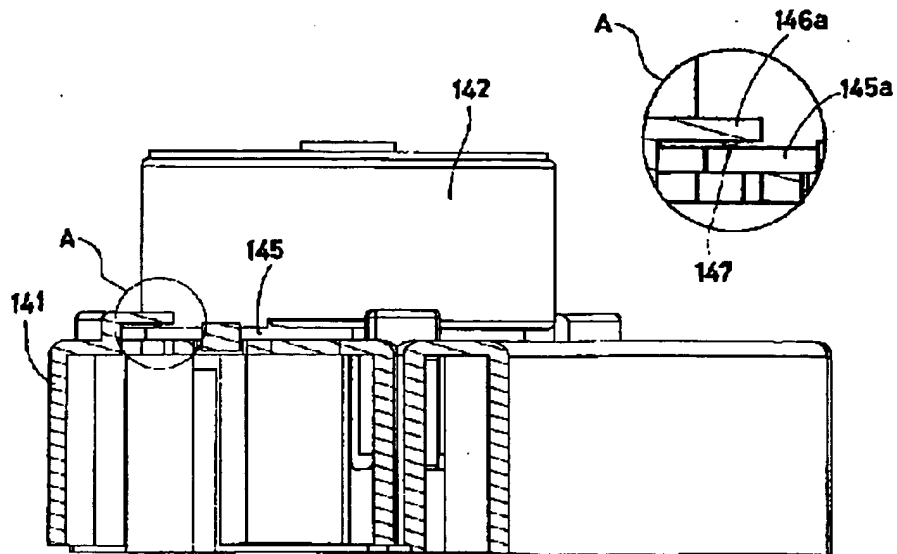
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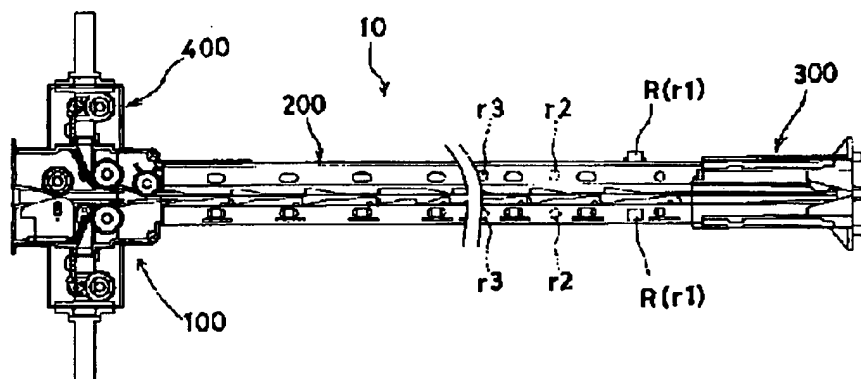
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[Drawing 22]

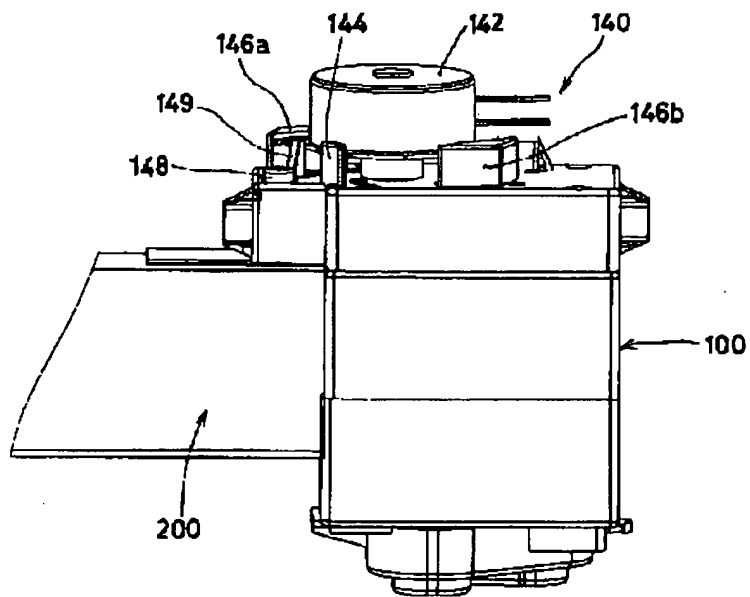


[Drawing 33]

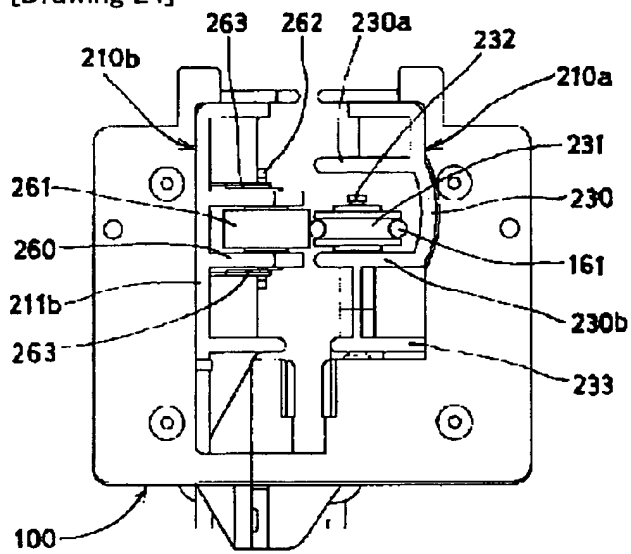


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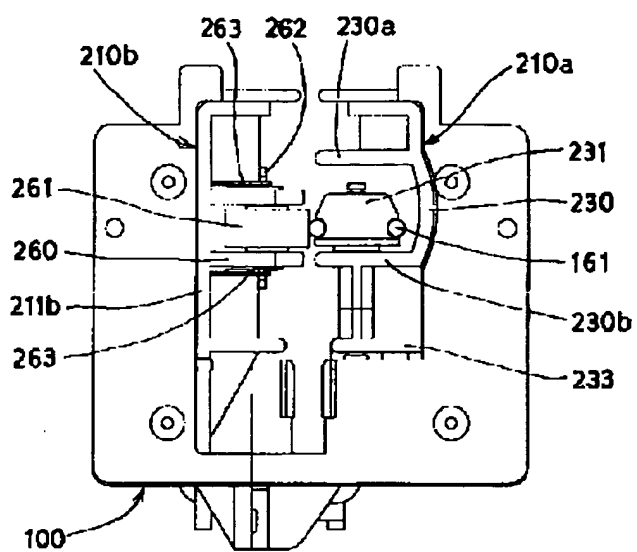




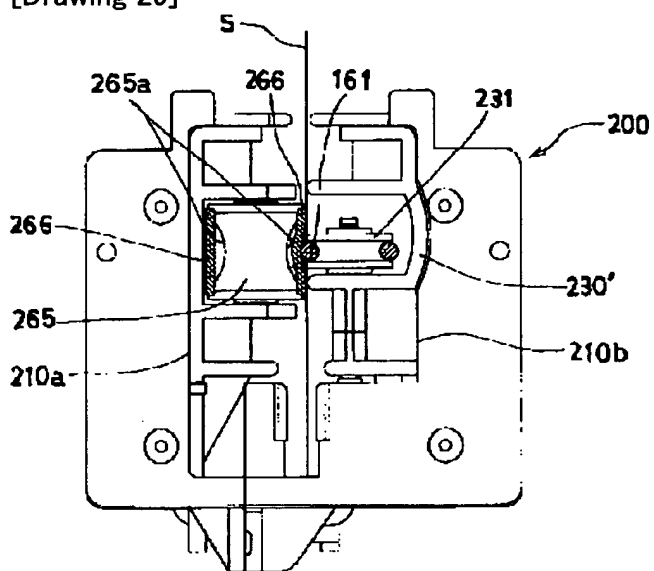
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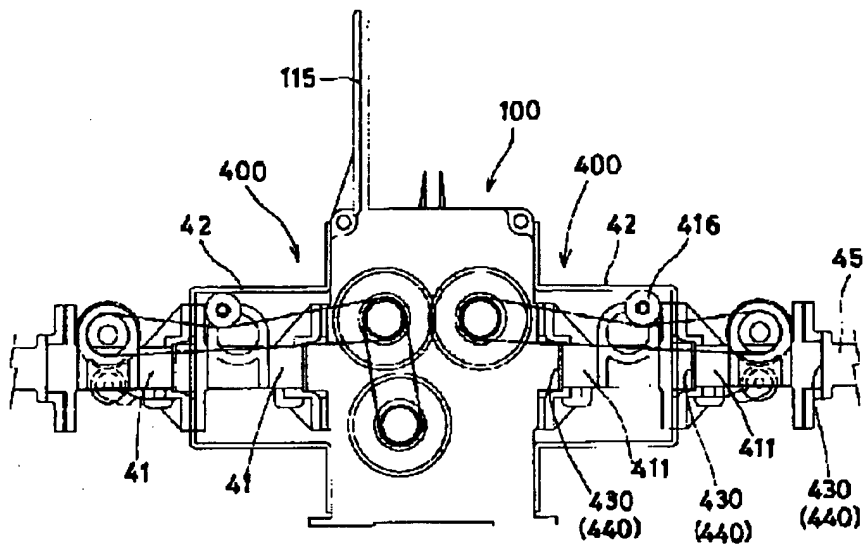
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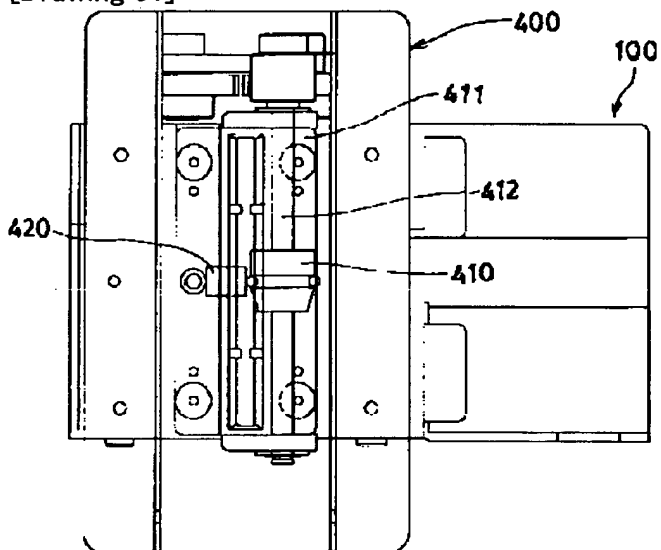
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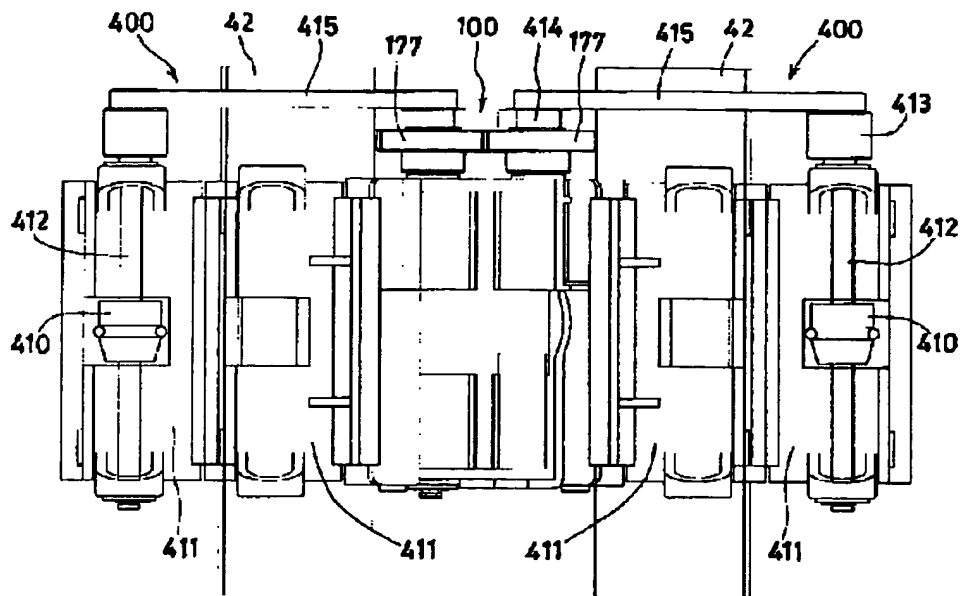
[Drawing 30]



[Drawing 31]



[Drawing 32]



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[Translation done.]

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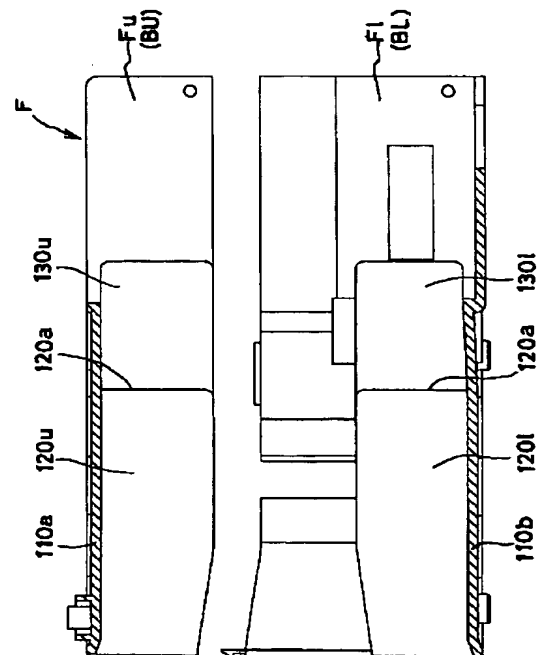
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(54) 【発明の名称】 紙幣搬送装置

(57) 【要約】

【課題】 組み立てが容易で紙幣詰まりが発生しない紙幣搬送装置を安価に提供する。

【解決手段】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、合流搬送駆動部は、上流側の搬送通路部から送り込まれる紙幣を下流側の搬送通路部に案内すると共に、紙幣投入機側から送り込まれる紙幣を搬送通路部に側方から合流させるように案内する受入れガイド部材120、φ130を有し、上記合流搬送駆動部を、上側フレームF<sub>u</sub>と上側受入れガイド部材120<sub>u</sub>、130<sub>u</sub>とを合成樹脂で一体成型した上側ブロックB<sub>u</sub>と、下側フレームF<sub>l</sub>と下側受入れガイド部材120<sub>l</sub>、130<sub>l</sub>とを合成樹脂で一体成型した下側ブロックB<sub>l</sub>とに、分割構成した。



## 【特許請求の範囲】

【請求項1】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、

合流搬送駆動部は、上流側の搬送通路部から送り込まれる紙幣を下流側の搬送通路部に案内すると共に、紙幣投入機側から送り込まれる紙幣を搬送通路部に側方から合流させるように案内する受入れガイド部材を有し、上記合流搬送駆動部を分割構造とすると共に、当該合流搬送駆動部のフレームと受入れガイド部材とを合成樹脂で一体成型したことを特徴とする紙幣搬送装置。

【請求項2】 合流搬送駆動部を、上側フレームと上側受入ガイド部材とを一体成型した上側ブロックと、下側フレームと下側受入ガイド部材とを一体成型した下側ブロックとに、分割した請求項1に記載の紙幣搬送装置。

【請求項3】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、

搬送通路部を、合成樹脂で成型した第1基体ケース及び第2基体ケースで構成し、第1基体ケースには、ブリーレール及び搬送レールを一体に設け、第2基体ケースには、ローラレール及び搬送レールを一体に設けたことを特徴とする紙幣搬送装置。

【請求項4】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、

合流搬送駆動部と紙幣投入機の間に、紙幣投入機から送り出された紙幣を合流搬送部の入口に送り込む紙幣中継装置を介在させ、

上記紙幣中継装置は、紙幣の送り機構と当該送り機構を収納可能なケース兼スベサとを備え、

上記送り機構は、ベース体の上下方向に回転自在に設けた回転軸と、この回転軸の中間に設けた回転ブリーと、この回転ブリーに圧接するように付勢された圧接ローラとを備えており、

上記ベース体は、一端に合流搬送部のフレームに設けた連結部に嵌合接続可能な接続部を有すると共に、他端に上記フレームの連結部と同形状の連結部を有し、当該ベース体またはケース兼スベサを互に連結可能なように構成してあり、

上記回転ブリーを合流搬送駆動部の駆動軸に駆動ベルトで連絡して回転駆動するようにしたことを特徴とする紙幣搬送装置。

【請求項5】 紙幣中継装置を複数組み合わせることで、

異なる島幅に対応するようにした請求項4に記載の紙幣搬送装置。

【請求項6】 紙幣中継装置の島幅に対応する位置に紙幣検出用センサの取付孔を開設した請求項4または5に記載の紙幣搬送装置。

【請求項7】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、

搬送通路部を構成する基体ケースに、上面にカット面を形成した片持ち構造のブリーを設けると共に、駆動ローラと搬送ベルトを合流搬送装置から分離し、

上記ブリーに架け渡す搬送ベルトの着脱を容易にしたことを特徴とする紙幣搬送装置。

【請求項8】 搬送通路部を、固定側の第1基体ケースと開放可能な第2基体ケースとで構成し、上記ブリーを開放側の第2基体ケースに設けて、搬送ベルトを第2基体ケースごと交換可能にした請求項7に記載の紙幣搬送装置。

【請求項9】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、

駆動源のモータを取り付ける配線ボックスに、側面方向に開口するモータ支持部と出沒可能に構成したモータ固定手段とを設け、モータに延設した取付片をモータ支持部に係止させると共に、突出状態のモータ固定手段でモータを固定するようにした紙幣搬送装置。

【請求項10】 駆動源のモータにシンクロナスモータを用いた請求項9に記載の紙幣搬送装置。

【請求項11】 配線ボックスのモータ取付面とモータのモータ取付板との間に隙間が生じるように突起を設け、モータの放熱を行うようにした請求項9または10に記載の紙幣搬送装置。

【請求項12】 モータ支持部を開口端が広く奥が狭いテーパ部とした請求項9ないし11の何れかに記載の紙幣搬送装置。

【請求項13】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、

搬送通路部に、紙幣の下端付近をガイドする溝状の紙幣ガイドを設けたことを特徴とする紙幣搬送装置。

【請求項14】 紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送

装置であって、搬送通路の先端部分に、ペレット等が落下可能な排出口を設けたことを特徴とする紙幣搬送装置。

【請求項15】紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部に設ける圧接ローラの側周面に凹陥部を設けると共に、当該圧接ローラに無端平ベルトを架け渡し、上記圧接ローラに対応するブーリには無端丸ベルトを架け渡し、上記無端平ベルトと無端丸ベルトとを圧接させて搬送する紙幣を挟持するようにしたことを特徴とする紙幣搬送装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、パチンコ台などの遊技台を複数配設した背面側において、台間玉貸機や両替機等に設けた紙幣投入機に投入された紙幣を搬送（回収）するための紙幣搬送装置に関し、詳しくは紙幣の搬送通路を構成し、且つ紙幣の搬送通路の一部を開閉可能に形成した紙幣搬送ユニットを複数連結して構成する紙幣搬送装置に関する。

【0002】

【従来の技術】パチンコ遊技店等において使用する紙幣と硬貨兼用の台間玉貸機（以下、玉貸機と記す）が公知なものとして知られている。その中にあって、近年では千円紙幣はもとより、五千円、一万円紙幣が使用できる玉貸機も出現している。このような背景の中でそれら紙幣を確実に回収する紙幣搬送装置の果たす役割は大きい。

【0003】従来、この種の紙幣搬送装置としては、紙幣の挟持方向の一方に開口する基体ケースと、この基体ケースの開口を閉鎖する開閉自在な開閉ケースとから構成され、前記基体ケースに搬送用の無端丸ベルトが取り付けられ、前記開閉ケースには上記無端丸ベルトとの協働により紙幣を挟持して搬送する複数のローラが取り付けられている。

【0004】一方、列設した遊技台に沿って形成する紙幣搬送路には、玉貸機に投入された紙幣を側方から合流させるための合流搬送駆動部が設けてある。この合流搬送駆動部は、紙幣搬送路を上流から下流へ搬送される紙幣と紙幣投入機に投入された紙幣とを合流させるためのガイド部材を、箱形フレーム内に収設することにより構成してある。

【0005】一方、紙幣搬送路等で紙幣詰まりが発生した場合には、店員が前記紙幣搬送装置の開閉ケースを基体ケースに対して開放操作することにより、紙幣の挟持状態が解除され、紙幣搬送路内に詰まった紙幣の除去等

を敏速に行える構造になっている。これは、例えばカールした紙幣や折れ曲がった紙幣など、種々様々な癖の紙幣が玉貸機に投入されるため、その紙幣詰まり時の作業性を考慮してためである。

【0006】

【発明が解決しようとする課題】従来の紙幣搬送装置は、一般に板金加工された多数のパーツを組み立てて各機能部を形成し、これらの機能部を組合せて装置全体を構成している。このため、組み立てに多大な手数がかかるばかりではなく、組立位置が僅かでも狂うと、この狂いによって紙幣がスムーズに流れなくなって紙幣詰まりが発生する恐れがあった。また、部品点数が多く、部品代や人件費等の組み立てコストが高み、結局、高い製品となっていた。

【0007】本発明は、上記に鑑み提案されたもので、組立、保守が容易で紙幣詰まりが発生しない紙幣搬送装置を安価に提供することを目的とする。

【0008】

【課題を解決するための手段】上記目的を達成するため請求項1に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、合流搬送駆動部は、上流側の搬送通路部から送り込まれる紙幣を下流側の搬送通路部に案内すると共に、紙幣投入機側から送り込まれる紙幣を搬送通路部に側方から合流させるように案内する受入れガイド部材を有し、上記合流搬送駆動部を分割構造とすると共に、当該合流搬送駆動部のフレームと受入れガイド部材とを合成樹脂で一体成型したことを特徴とする紙幣搬送装置である。請求項2に記載した発明は、請求項1の構成に加えて、合流搬送駆動部を、上側フレームと上側受入ガイド部材とを一体成型した上側ブロックと、下側フレームと下側受入ガイド部材とを一体成型した下側ブロックとに、分割した紙幣搬送装置である。

【0009】請求項3に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部を、合成樹脂で成型した第1基体ケース及び第2基体ケースで構成し、第1基体ケースには、ブリーレール及び搬送レールを一体に設け、第2基体ケースには、ローラレール及び搬送レールを一体に設けたことを特徴とする紙幣搬送装置である。

【0010】請求項4に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、合流搬送駆動

部と紙幣投入機の間に、紙幣投入機から送り出された紙幣を合流搬送部の入口に送り込む紙幣中継装置を介在させ、上記紙幣中継装置は、紙幣の送り機構と当該送り機構を収納可能なケース兼スペースとを備え、上記送り機構は、ベース体の上下方向に回転自在に設けた回転軸と、この回転軸の中間に設けた回転ブリーと、この回転ブリーに圧接するように付勢された圧接ローラとを備えており、上記ベース体は、一端に合流搬送部のフレームに設けた連結部に嵌合接続可能な接続部を有すると共に、他端に上記フレームの連結部と同形状の連結部を有し、当該ベース体またはケース兼スペースを互に連結可能なように構成してあり、上記回転ブリーを合流搬送駆動部の駆動軸に駆動ベルトで連絡して回転駆動するようにしたことを特徴とする紙幣搬送装置である。請求項5に記載した発明は、請求項4の構成に加えて、紙幣中継装置を複数組み合わせることで、異なる島幅に対応するようにした紙幣搬送装置である。請求項6に記載した発明は、請求項4または5の構成に加えて、紙幣中継装置の島幅に対応する位置に紙幣検出用センサの取付孔を開設した紙幣搬送装置である。

【0011】請求項7に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部を構成する基体ケースに、上面にカット面を形成した片持ち構造のブリーを設けると共に、駆動ローラと搬送ベルトを合流搬送装置から分離し、上記ブリーに架け渡す搬送ベルトの着脱を容易にしたことを特徴とする紙幣搬送装置である。請求項8に記載した発明は、請求項7の構成に加えて、搬送通路部を、固定側の第1基体ケースと開放可能な第2基体ケースとで構成し、上記ブリーを開放側の第2基体ケースに設けて、搬送ベルトを第2基体ケースごと交換可能にした紙幣搬送装置である。

【0012】請求項9に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、駆動源のモータを取り付ける配線ボックスに、側面方向に開口するモータ支持部と出脱可能に構成したモータ固定手段とを設け、モータに延設した取付片をモータ支持部に係止させると共に、突出状態のモータ固定手段でモータを固定するようにした紙幣搬送装置である。請求項10に記載した発明は、請求項9の構成に加えて、駆動源のモータにシンクロナスモータを用いた紙幣搬送装置である。請求項11に記載した発明は、請求項9または10の構成に加えて、配線ボックスのモータ取付面とモータのモータ取付板との間に隙間が生じるように突起を設け、モータの放熱を行うようにした紙幣搬送装置である。請求項1

2に記載した発明は、請求項9ないし11の構成に加えて、モータ支持部を開口端が広く奥が狭いテーバー部とした紙幣搬送装置である。

【0013】請求項13に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部に、紙幣の下端付近をガイドする溝状の紙幣ガイドを設けたことを特徴とする紙幣搬送装置である。

【0014】請求項14に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路の先端部分に、ベレット等が落下可能な排出口を設けたことを特徴とする紙幣搬送装置である。

【0015】請求項15に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部に設ける圧接ローラの側周面に凹陷部を設けると共に、当該圧接ローラに無端平ベルトを架け渡し、上記圧接ローラに対応するブリーには無端丸ベルトを架け渡し、上記無端平ベルトと無端丸ベルトとを圧接させて搬送する紙幣を挟持するようにしたことを特徴とする紙幣搬送装置である。

【0016】

【発明の実施の形態】以下、図面に基づいて本発明の実施形態を説明する。図1は、隔台タイプ（遊技台2台置きに台間にあるいは台の上方に玉貸機が配置されている）の紙幣搬送装置（紙幣搬送ユニット）10の一実施形態を示している。図2は全台タイプ（遊技台1台置きに台間にあるいは台の上方に玉貸機が配置されている）の紙幣搬送装置（紙幣搬送ユニット）10の一実施形態を示している。尚、以下の説明において、紙幣搬送装置10と称した場合、複数連結して紙幣搬送装置全体を構成するための紙幣搬送ユニットを示すものとする。

【0017】これらの実施形態の紙幣搬送装置10は、合流搬送駆動部100と搬送通路部200とから構成されている。搬送通路部200は、基体ケース210と開閉ケース220とから成り、その先端にはジョイント部材300が取り付けられている。そして、上記紙幣搬送装置10を複数連結して遊技店の島に配設される紙幣搬送装置全体が構成される。尚、開閉ケース220は、施錠装置5を介して取り付けられてあり、無暗に開閉できないように構成してセキュリティを高めている。

【0018】各紙幣搬送装置10は、通常、背中合わせに配設した2列の遊技台Pの背面側の空間に水平方向



に、且つ、その合流搬送駆動部100が両側の玉貸機Qに投入された紙幣S2を受け入れられる位置になるように配置され、ジョイント部材300を介して隣の紙幣搬送装置10に連結する。そして、遊技店の島の長さに対応する長さになるように複数連結されている。

【0019】合流搬送駆動部100は、例えば図4に示すように、上流側の紙幣搬送装置10から送り出された紙幣S1、並びに玉貸機Qに投入された紙幣S2を取り込んで搬送通路部200へ送り出すものである。この合流搬送駆動部100は、中空長方形に分割形成したフレームFの対向する側壁111に紙幣が通過可能に開設した縦方向の長穴112の周囲の上流側縁部に、第1の受入れガイド部材120を形成し、長穴112の下流側縁部に第2の受入れガイド部材130を形成する。これらの受入れガイド部材120、130は、合成樹脂により上記フレームFと一体に形成する。

【0020】例えば図17及び図18に示すように、第1の受入れガイド部材120は、上流側の紙幣搬送装置10からの紙幣S1を受け入れてガイドする第1の通路Aを形成するための第1通路形成板部121と、この第1通路形成板部121の中間部において連設された、側方の玉貸機Qからの紙幣S2を受け入れてガイドする第2の通路Bを形成するための、湾曲した第2通路形成板部122とを備えていて、この第2通路形成板部122の基端が長穴112の縁部に連設している。

【0021】第1の受入れガイド部材120は、第1通路形成板部121の上流側端部が上流側に向かって僅かに開くように傾斜しており、この端部が合流搬送駆動部100を構成するフレームFの紙幣入口113の縁部に連設している。

【0022】このように、第1通路形成板部121の上流側端部を、小さく開くテーパー形状にすると、紙幣S1のカールした先端が当たってもそのまま正しい方向へ案内されるため紙幣入口113付近で紙幣詰まりが発生することがなくなる。

【0023】そして、フレームFにおいて、第1の受入れガイド部材120の第1通路形成板部121によって、上流側の紙幣搬送装置10からの紙幣S1を受け入れてガイドする第1の通路Aが形成される。一方、第2の受入れガイド部材130は、第1の受入れガイド部材120の第2通路形成板部122に対応して湾曲した通路形成板部132をフレームFに連設してなり、上記第1の受入れガイド部材120の第2通路形成板部122と、第2の受入れガイド部材130の通路形成板部132とによって、玉貸機Qからの紙幣S2を受け入れてガイドする第2の通路Bが形成される。

【0024】そして、図17及び図18に示すように、第2の受入れガイド部材130の通路形成板部132は下流側へ長く延びて、搬送通路部200内へ突出可能になっている。また、第1の受入れガイド部材120の下

流側先端部120aは、第2の受入れガイド部材130の下流側の奥深くまで延設された延設部を構成している。

【0025】このように、下流側先端部120aが奥深く延設され、且つ、極めて狭くなっているため、第2の通路B内に玉貸機Qから通路形成板部132の先端に達するまで進入した状態で待機している紙幣S2に、第1の通路Aから来た紙幣S1が干渉されて紙幣詰まりを生じる恐れがなくなる。また、狭い第1の通路Aを進むため、紙幣S1にシワなどがあっても、そのまま、紙幣詰まりを生じることなく真っ直ぐに進行できる。

【0026】そして、本発明では、上記第1の受入れガイド部材120と、第2の受入れガイド部材130とが、フレームFと共に合成樹脂で一体成型され、当該フレームFは分割構成されている。即ち、図面に示した実施形態では、上側フレームFuと上側受入れガイド部材120u、130uとを一体成型した上側ブロックBUと、下側フレームFlと下側受入れガイド部材120l、130lとを一体成型した下側ブロックBLとに、分割してある。

【0027】例えば図13ないし図18に示すように構成した上側フレームFuと下側フレームFlとを組み合わせて、本発明に係る紙幣搬送装置10における合流搬送駆動部を構成する。このとき、上側フレームFuと下側フレームFlとの間に、第1通路形成板部121の水平方向に切欠き状の空隙124、及び第2の受入れガイド部材130の通路形成板部132の水平方向に切欠き状の空隙133が形成される。そして、この空隙133には、後述する駆動ローラ160a、160b、無端丸ベルト161、摩擦リング162が進入することになる。

【0028】上記のように分割構成した合流搬送駆動部100によれば、部品点数が著しく減少すると共に、部品代及び組み立てコストを削減可能である。また、受入れガイド部材の位置が一定なり、均一な品質の製品を提供できる。しかも、組付誤差等により、段差や隙間等が発生することがないので、紙幣詰まりの原因を排除することができる。

【0029】フレームFの底壁には、図20に示すように、モータユニット140が固定されている。モータユニット140は、合成樹脂により一体成型された配線ボックス141とモータ142とから成る。配線ボックス141はモータ142の駆動軸を受け入れる軸孔部と、その下面にモータ142の取付板145の鋸部145a、145bを水平方向に受け入れて支持する支持部146a、146bを有すると共に、位置決めボス144等を有している。即ち、一対に形成した支持部146a、146bは、水平方向に開口し、図21に示す実施形態では、開口端が広く、奥が狭まっており、モータ取付板145の鋸部145a、145bを受け入れ易く、一旦受け入れたときには挟まって抜け難くなっている。

また、図22に示す実施形態では、支持部146a、146bの内側面に突起147を設け、この突起147で鍔部145a、145bを押圧するようにして抜け難くしている。尚、この突起147は、点又は線状に配置することができ、鍔部145と点接触又は線接触となるので、取付時の抵抗が削減されている。

【0030】配線ボックス141にはモータ142の固定手段を設ける。この固定手段は、例えば、モータ142の取付板145の側縁に当接する位置に、付勢手段、例えばバネによって付勢された固定ボタン148を、配線ボックス141の底面から出沒可能に設け、当該固定ボタン148が底面から突出した状態ではモータ取付板145の回動を阻止し、固定ボタン148が配線ボックス141内に後退した状態のときにモータ取付板145の回動を許容するように構成する。また、上記固定ボタン148を、一部切欠を介して配線ボックス141と共に合成樹脂で一体成型し、合成樹脂の弾性を付勢手段に利用してもよい。

【0031】従って、モータ142を配線ボックス141に固定するには、モータ142の回転軸を、配線ボックス141の軸孔に挿入すると共に、固定手段の固定ボタン148を配線ボックス141内に押し込みながらモータ取付板145の鍔部145a、145bが、支持部146a、146bに嵌入するように回動させる。この回動が完了して、鍔部145a、145bが支持部146a、146bに係止すると、固定ボタン148が突出して、取付板145の側縁に係止する。従って、モータの取付板145は、戻り回動が阻止されて、配線ボックス141に固定される。一方、モータ142を取り外すときには、固定ボタン148を押し込んだ状態でモータ取付板145を回動させて支持部146a、146bとの係止を解いて引き抜けばよい。

【0032】上記のようなモータユニット140には、シンクロナスモータを用いるとよい。シンクロナスモータは、従来の紙幣搬送装置10に使われていたギヤードモータに比べて、歯車装置を有しないため小型で安価である。そして、シンクロナスモータを用いれば、モータ自体の高さが低くなるので、紙幣搬送装置10の全体の高さを低く構成することができ、狭い島内における設置が容易になる。また、本発明にあっては、従来、単にモータの回転を伝える伝達ギヤとは異なり、後述する歯車17、18、19とで減速をなしている。

【0033】しかも、上記のような構成のモータユニット140によれば、モータ142の交換も極めて容易であり、ドライバー等の工具を用いることなく作業ができ、遊技台Pの背面側に残された狭い内部空間における作業に極めて有効である。

【0034】一方、図23に示す他の実施形態のように、例えば台座149を設けることにより、モータ取付板145と配線ボックス141の底面との間に隙間を形

成し、取付板145と底面とが密着しないようにすると、モータ142の放熱がよくなり、モータ142の加熱を防止することができる。また、溝により取付板145とモータ取付板145の底面との間に隙間を形成するようにしてもよい。

【0035】前記した合流搬送駆動部100を構成するフレームFの底壁110bと上壁110a間、即ち上側ブロックBUと下側ブロックBLとの間には、1つの駆動軸170（図8参照）が垂直方向に回転自在に取り付けられている。また、底壁の下方において、駆動軸170の下端に設けた歯車17と、モータ142の駆動軸の歯車18と駆動軸173の歯車19とが噛み合っており、モータ142の回転は駆動軸170、173に伝達されるようになっている。

【0036】また、上側ブロックBUの上壁110aと下側ブロックBLの底壁間には、同様に垂直に2つの従動軸171、172が回転自在に取り付けられていて、上壁110aの上方において、駆動軸170、従動軸171に固定された同一径のプリー174a、174b間に装着されたベルト175によって駆動軸170と同一方向に同一速度で従動軸171は回転する。また、駆動軸170と従動軸172には互いに噛み合った同一歯数の歯車176、177が固定されていて、従動軸172は逆方向に同一速度で回転する（図10参照）。

【0037】従動軸171は、図8に示すように、第1の受入れガイド部材120より僅かに側壁111a側に位置して、中間部に、即ち、第1の受入れガイド部材120の第1通路形成板部121の水平方向の空隙124に対応した位置において、プリー150が固定されている。プリー150は、上下方向の中央において環状溝を有し、この環状溝にゴムなどの摩擦体からなる無端丸ベルト151が外方に突出した状態で取り付けられていて、第1の通路A内に僅かに突出している。尚、全台タイプの紙幣搬送装置10にあっては、プリー150には環状リングなどが取り付けられる。尚、前記駆動軸170は、フレームFに開設した軸受部材取付孔179に装着した軸受部材（図示せず）に軸支されており、上記他の従動軸171、172に付いても同様である。

【0038】これに対向して、フレームFの下半部分を構成する下側ブロックBLの側壁111bに固定されたローラベース152に、外周に摩擦体を有する圧接ローラ153が回転自在に軸154によって取り付けられている。この軸154はバネ等の付勢手段（図示せず）によってプリー150側へ付勢されているため、第1の通路Aにおいて回転駆動するプリー150の無端丸ベルト151に圧接ローラ153は圧接して回転する。このため、上流側の紙幣搬送装置10から送り出された紙幣S1は、第1の通路Aにおいてプリー150の無端丸ベルト151と圧接ローラ153との間に挟持されて取り込まれる。

【0039】駆動軸170には、第2の通路Bの第2の受入れガイド部材130の通路形成板部132より僅かに外方に位置していて、その上下方向の中間部、即ち、通路形成板部132側の空隙133に対応した位置において、駆動ローラ160aが第2の通路B内に突出した状態で固定されている。この駆動ローラ160aには摩擦リング162が装着され、この摩擦リング162にはバネで付勢された送りローラ164が当接する。尚、この送りローラ164は、上側ブロックBU及び下側ブロックBLに設けた装着爪125に装着する装着板127に揺動自在に取り付けられ、上側ブロックBUと下側ブロックBLとの間に形成される空隙124から突出した状態となる(図19参照)。

【0040】このため、本実施形態では、玉貸機Qから第2の通路Bへ送り出された紙幣S2は、上記送りローラ164によって摩擦リング162に押し付けられ、挟持搬送されるため、取り込みが確実となる。従って、腰のない紙幣やシワになってアコーディオン状になっているために従来装置では取り込めないような紙幣であっても、確実にキャッチ可能とすることができる。

【0041】また、図示の実施形態では、上流からの紙幣S1を挟持搬送する第1の搬送通路Aと、玉貸機Qからの紙幣S2を搬送する第2の搬送通路Bとが合流する合流搬送駆動部100において、第2の搬送通路Bの終端を、駆動源に連絡した駆動ローラ160aに対して接近させる受入ガイド126を設けている。即ち、この実施形態では、上記送りローラ164の外周面と無端丸ベルト161の接点に向けてリブ状に突出する受入ガイド126が設けてある。この受入ガイド126は、前記した装着板127に一体的に設けられ、送りローラ164の上下に位置すると共に、駆動ローラ160aまたは160bに対向して一対に設けてある。

【0042】上記のような受入ガイド126によれば、玉貸機Qから第2の搬送通路Bへ送り出された紙幣S2の先端がたとえカールしていても紙幣S2の先端が折れることなく、当該紙幣S2を送りローラ164と無端丸ベルト161との接点方向に確実に誘導して送りローラ164の食いつきを良好にすることができる。即ち、玉貸機Qから送り込まれた紙幣S2を、搬送通路部200へ確実に合流させることができる。

【0043】また前記と同様に第2従動軸172は、第2の通路Bの第2の受入れガイド部材130の通路形成板部132より僅かに外方に位置していて、第1の従動軸171と同一高さに第2の通路Bに突出した状態で駆動ローラ160bが固定されている。そして駆動ローラ160bの環状溝にはゴムなどの摩擦体から成る摩擦リング162が嵌着されていて、摩擦リング162は第2の通路Bに突出している。そして摩擦リング162に対向して、送りローラ164がバネを介して第1の受入れガイド部材120の前端側空隙124より突出した状態

で取り付けられている。このため、玉貸機Qから送り出された紙幣S2は送りローラ164と摩擦リング162とで上記と全く同様の原理で確実に挟持されて取り込まれる。

【0044】合流搬送駆動装置を構成するフレームFの上壁110aには、ギヤカバー180が取り付けられている。このギヤカバー180の上流側には、上流側の紙幣搬送装置10の開閉ケース220の開放を抑止する施錠装置5の係止部が突出して設けられ、本体部52の係止穴と係脱する。また、下流側先端には開閉ケース220の上流側端部の上面を押さえ、該開閉ケース220の取り外しを規制するように成した係止片が形成されている。尚、図1に示す隔台タイプ用紙幣搬送装置10にあっては、係止片が上記係止片と同様、上流側の搬送通路部200の開閉ケース220の上面を押さえ、該開閉ケース220の着脱を規制している。

【0045】合流搬送駆動部100のフレームFの下部分を構成する下側ブロックBLの側壁111には、図13ないし図18に示すように、延設固定板115が一体に突設されていて、この延設固定板115に搬送通路部200を構成する基体ケース210を固定して紙幣搬送装置10を構成する。

【0046】搬送通路部200は、例えば図3で示すように、第1基体ケース210aと、この第1基体ケース210aに開放自在に取り付けられる第2基体ケース210bとからなる基体ケース210と、該基体ケース210の上方側に着脱自在に取り付けられた開閉ケース220とからなる。尚、図3には開閉ケース220は画かれていない。

【0047】第1基体ケース210aの側壁211aの内面には、図3や図5或いは図24等に示すように、断面はコ字状に形成したブーリール230及び台座レール233が水平方向に設けられ、このブーリール230を構成する上板230aと下板230bとの間には、台座レール233から起立した上下方向の軸232によって複数のブーリ231が回転自在に片持ち状態で取り付けられている。そして、前記合流搬送駆動部100における駆動軸173の駆動ローラ190と、第1基体ケース210aの各ブーリ231とに、無端丸ベルト161が架け渡されている。

【0048】そして、上記のような構造の第1基体ケース210aは、合成樹脂により一体成型により構成する。従って、従来品のように各部材をネジ等により個々に取り付ける必要がなく、組み立て工数の大幅な削減が可能である。しかも、組付時の誤差も生じないので、品質の安定した製品となる。また、部品点数も大幅に減少するので、管理等も容易になる。

【0049】また、図25に示すように、ブーリ231の側面をテーパ状にする。即ち、自由端側を小径に、軸支側を大径に形成する。このように形成すると、前記

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した片持ち構造と相俟って、無端丸ベルト161の掛け替えが極めて容易になる。

【0050】一方、上記のような第1基体ケース210aに開閉自在に取り付けられる第2基体ケース210bも、以下のような構成で合成樹脂により一体成型されている。即ち、第2基体ケース210bの側壁211bの内面には、第1基体ケース210aのブーリレール230と対向する高さにおいて、ローラレール260が設けられている。このローラレール260に、各ブーリ231と対向する各圧接ローラ261が軸262によって回動自在に、且つバネ263によってブーリ231側へ付勢されて取り付けられている。

【0051】このように第1基体ケース210a側の各ブーリ231の無端丸ベルト161に、第2基体ケース210b側の圧接ローラ261が圧接されている。このため、合流搬送駆動部100から送り出された紙幣は厚さ方向から無端丸ベルト161と圧接ローラ261に挟持されてスムーズに搬送されている。

【0052】そして、合流搬送駆動部100側に最も近いブーリ231a及び圧接ローラ261aは、玉貸機Qから送り出されて待機状態の紙幣S2の先端位置より僅かに下流側に位置するように配置されている。このため、待機状態の玉貸機Qからの紙幣S2によって最上流側のブーリ231aの無端丸ベルト161及び圧接ローラ261aが覆われた状態にならない。従って、第1の通路Aから搬送された紙幣S1が上記無端丸ベルト161と圧接ローラ261aで確実に挟持されるため、紙幣詰まりが生じることがない。

【0053】尚、この実施形態では、ローラレール260の搬送面260dを、圧接ローラ261の軸着位置において、拡幅させると共に、緩やかな曲面形状を備える波型を適宜間隔において形成すると共に、圧接ローラ261を越えた位置において急激な段部260eを介して縮幅させた。このため、先端がカールして圧接ローラ261側を向いた紙幣であっても、圧接ローラ261に巻き込まれることがなく、この圧接ローラ261を乗り越えるときに、騒音が発生しなくなる。

【0054】また、この実施形態では、例えば図6に示すように、ローラレール260の上流側の端部をカット面260aとし、このカット面260aに続く誘導面260bをローラレール260の基端面260cとほぼ平行に形成し、前記した搬送面260dに連絡した。

【0055】上記のようなローラレール260の受入部によれば、先端がカールした紙幣であっても隙間に入り込んで詰まることがない。また、隣接する紙幣搬送装置10のジョイント部材300とオーバーラップしている距離が短くても、紙幣を確実に搬送通路部200に誘導することができるので紙幣詰まりが発生しない。しかも、オーバーラップさせるためにジョイント部材300に設ける突出片301を小さく形成できるので、突出量

が少なく、取り扱いが容易である。

【0056】更に、この実施形態では、上記圧接ローラ261を付勢するバネ263を比較的弾性力の弱いものとしてある。このため、新札を二つ折りにした場合のように、腰が強く且つ山形が圧接ローラ261に向いて搬送されても、圧接ローラ261が山形を逃すことができ、このために起きる紙幣詰まりがない。

【0057】本発明に係る紙幣搬送装置10において、開放側である第2基体ケース210b側に、搬送駆動用の無端丸ベルト161を設けることもできる。即ち、図26ないし図28に示すように、第2基体ケース210bにブーリレール230を設けると共に、各ブーリ231に丸ベルト161を張設する。また、合流搬送駆動部100と連繋するように、端部のブーリ軸232'に連繋ギヤ234を設けると共に、この連繋ギヤ234に噛合する連動ギヤ235を合流搬送駆動部100に設ける。

【0058】そして、万一、丸ベルト161が切断したときには、図28に示す第2基体ケース210bごと、交換してしまえば、極めて短時間で復旧可能であり、紙幣搬送装置10の停止時間が極短時間となるので、遊技者に掛ける迷惑を最小限に留めることが可能になる。

【0059】前記した実施形態では、ブーリ231に圧接ローラ261が圧接して丸ベルト161と共に紙幣を挟持可能なように、バネ263で圧接ローラ261を付勢しているが、本発明に係る紙幣搬送装置10は、上記バネ263を省略することができる。

【0060】そのために図29に示す実施形態では、圧接ローラ265の側周面を鼓型に若干凹陥させると共に、各圧接ローラ265に無端平ベルト266を架け渡す。このような構成によれば、図29に示すように、平ベルト266が無端丸ベルト161により押されて圧接ローラ265の凹陥部265aに若干は入り込み、この状態では平ベルト266に反発力が生じるので、紙幣Sを挟持することができる。

【0061】また、この実施形態では、ブーリレール230の壁部に丸ベルト161が接触しないようにブーリレール230の壁部230'を外方向に円弧状に膨出させている（図29参照）。これにより無端丸ベルト161の架け替えを容易にできる。

【0062】このような構成は、合成樹脂による一体成型によれば、極めて簡単に実現可能である。そして、前記バネ263を省略することにより、部品点数の大幅な削減及び組立工数の大幅な削減が可能になり、部品コスト及び人件費を大幅に削減できる。バネ263の取付不良や押圧力のバラツキが発生しないので、紙幣の搬送が安定し、紙幣詰まりが発生する恐れのない紙幣搬送装置を提供可能である。

【0063】搬送通路部200を構成する第1基体ケース210aまたは第2基体ケース210bの底部には、

溝状の紙幣搬送ガイド270を長手方向に沿って設けることができる。この紙幣搬送ガイド270は、例えば図3に示すように上方が開口する樋状であって、即ち対向する一対のガイド壁271と、両ガイド壁271の下端を繋ぐ底板部272とからなり、この底板部272の上に紙幣の下辺が載り、下端付近を上記一対のガイド壁271、271が支えて、前記した無端丸ベルト161と圧接ローラ261に挟持された紙幣が進む。

【0064】このような紙幣搬送ガイド270によれば、紙幣の下端部分を両側からガイドすることができるので、紙幣の横逃げを確実に防止することができる。尚、この紙幣搬送ガイド270は、開放側の第2基体ケース210bに設けてもよいし、両ケース210a、210bを組み合わせて形成することもできる。

【0065】上記のような紙幣搬送ガイド270の下流側の端部付近、即ちジョイント部材300側の端部付近の底板部272には、ベレットや異物等を排出するための開口部273を開設する。ベレットは、パチンコ玉を洗浄研磨するときに使用する粒状の洗浄剤であり、洗浄機から溢れて周辺に付着したベレットが保守点検で開いた開閉ケース220から搬送通路内に混入することがある。この混入したベレット等を放置しておく、紙幣詰まりを引き起こす原因となるので排出しなければならない。

【0066】そこで、本発明に係る紙幣搬送装置10では、効率よくベレットを排出可能な位置、即ち上記したように紙幣搬送ガイド270の下流側端部付近(図3参照)に、排出口として開口部273を開設している。この位置に排出口を設けておけば、下流側の紙幣搬送装置10にベレット等が侵入することを防止でき、紙幣詰まりを未然に防止することができる。

【0067】紙幣投入機と合流搬送駆動部100との間には、紙幣投入機(玉貸機Q)から送り出された紙幣を合流搬送駆動部100の入口に送り込む紙幣中継装置400を介在させる。この紙幣中継装置400は、遊技店によって異なる島幅の対応を図るためのものであって、即ち島の奥行きが異なって紙幣投入機と合流搬送駆動部100との距離が異なっても、紙幣を確実に合流搬送駆動部100に送り込むためのものである。

【0068】そこで、この紙幣中継装置400は、一対の回転ブリー410と圧接ローラ420とを有する送り機構41と、この送り機構41を収納するケース兼スペーサ42とを備えている。上記送り機構41は、ベース体411の上下方向に回転自在に設けた回転軸412と、この回転中間に設けた回転ブリー410と、この回転ブリー410に圧接するように付勢された圧接ローラ420とを備えている。

【0069】上記ベース体411は、合成樹脂で成型された部材であって、一端に合流搬送駆動部100のフレームFに設けた連結部430に嵌合接続可能な接続部4

40を有すると共に、他端に上記フレームFの連結部430と同形状の連結部450を有し、当該ベース体411を次々に連結可能なように構成してある。

【0070】一方、上記ベース体411を覆うことのできるケース兼スペーサ42は、合流搬送駆動部100の側壁部に固定可能である。このケース兼スペーサ42を、ケースとして機能させるときには、前記した送り機構41を備えるベース体411を収設すると共に、天板上に、駆動ブリー413を設けて、合流搬送駆動部100の駆動ブリー414との間に駆動ベルト415を架け渡す(図10)。一方、スペーサとして機能させるときには、ケース内にブリー等を設けなが、天板に駆動ベルト415のテンションローラ416を設ける(図30)。そして、上記のような送り機構41とケース兼スペーサ42を適宜組み合わせて所望の間隔の紙幣中継装置400を構成する。

【0071】上記のような紙幣中継装置400によれば、単一の部材を組み合わせることにより異なる島幅に柔軟に対応することができ、コストの削減や部品の在庫が容易になる。また、急な仕様変更にも直ちに対応可能であるなど、実用的価値が極めて高い。尚、ケース兼スペーサ42の間隔に満たない距離の調整は、筒状スペーサ45によって行えばよく、紙幣投入機と合流搬送駆動部100とが、どのような間隔で配置されていても隙間なく紙幣を案内できる。

【0072】更に、搬送通路部200を構成するジョイント部材300及び基体ケース210a、210bには複数の紙幣検出用センサRの取付孔r0、r1、r2、r3、…を開設しておき、紙幣中継装置400の島幅に対応するように適宜選択して紙幣検出用センサRを取り付ける。これは、搬送通路部200の上流側から送り込まれる紙幣と、紙幣投入機により側方から送り込まれる紙幣とが、合流搬送駆動部100において重ならないようにする配慮からである。即ち、紙幣投入機に投入された際にカウントした紙幣数と、最終的にスタッカに集められた紙幣数とが一致しない不都合を防ぐためである。具体的には、図5及び図6に示す島幅の狭い実施形態では、ジョイント部材300側に設けた取付孔r0を選択してセンサRを設けている。一方、図33に示すように、島幅が広がって紙幣中継装置400を用いた実施形態では、取付孔r1を選択して一対のセンサRを取り付けている。このように、島幅の広がりに対応してセンサRの取付位置を移動させる。

【0073】前記したようにフレームFの延設固定板115に固定した第1基体ケース210aには、第2基体ケース210bを着脱自在に取り付ける。これは、例えば、第1基体ケース210aの底壁に取り付けた第1止着金具の係合孔に、第2基体ケース210bの側壁の下縁に取り付けた第2止着金具の係合突起を嵌脱自在に係合させればよい。このような構成によれば、係合孔に係

合させた係合突起を支点にして、第2基体ケース210bがこの係合孔を中心に第1基体ケース210aに対して回動自在となり、係合を外せば第2基体ケース210bを分離できる。尚、図7は丁度第2基体ケース210bが回動して図示していない第1基体ケース210aにぶら下がった状態を示している。

【0074】図1及び図2において、組み付けた両基体ケース210の上面には、開閉ケース220を着脱自在に取り付けている。即ち、開閉ケース220の下縁部には、複数のピン（図示せず）が設けられていて、第1基体ケース210aの上壁の穴214a及び第2基体ケース210bの上壁の穴214b（図3参照）に上方から嵌入係合される。また、開閉ケース220の内側には、搬送通路部200を搬送される紙幣の上縁部をガイドするガイド壁が設けてある。

【0075】また、開閉ケース220は、第1基体ケース210a及び第2基体ケース210bと同様に、透明材で形成しておくといよい。即ち、透明材ならば外部から搬送通路内の紙幣の正常な流れや紙幣詰まりなどの状況が開閉ケース220を開けなくても視認可能である。

【0076】搬送通路部200の下流側には、ジョイント部材300を移動自在に取り付ける。ジョイント部材300は、例えば図9に示すように紙幣搬送ガイド270の先端が入り込むテーパー溝31を備え、紙幣の受け渡しを行う。上記テーパー溝31、即ち紙幣通路Cは、下流側に向かって次第に幅を狭くしてあり、更に上記テーパー溝201は下流側にくちばし状の突出片301を有している。この突出片301によって下流側の紙幣搬送装置10とオーバーラップして紙幣を保持するため、確実に下流側の紙幣搬送装置10に取り込ませることができる。

【0077】尚、ジョイント部材300の下流側の端面には、隔台タイプにあっては下流側の紙幣搬送装置10の搬送通路部200の穴に、また全台タイプにあってはフレームFの側壁111の穴に挿入するための複数の接続ピン32が水平方向に突設してある。

【0078】そして、本発明に係る紙幣搬送装置10は、図1及び図2に示すように、ジョイント部材300を開閉ケース220を固定または解放操作自在になす施錠装置5が設けてある。そして、施錠装置5には鍵穴が設けられており、この鍵穴に抜き差し自在な鍵を挿入操作することにより、開閉ケース220の解放が抑止され、ジョイント部材300の上流側への摺動が規制されると同時に、この状態にて隣合う紙幣搬送装置10同士が連結される。

【0079】一方、上記抑止状態が解除されると、開閉ケース220の取り外しが可能となり、搬送通路部200の一部である第2基体ケース210bが解放される。

【0080】上記の説明は、図2に示すような全台タイプの紙幣搬送装置10における説明であるが、隔台タイプ

においては、ジョイント部材300に並設した施錠装置5で開閉ケース220の開放を抑止すればよい。尚、施錠装置5は、特に必要がない遊技店にあっては、設置しなくてもよく、設置しなければ設備費の削減が可能である。

【0081】尚、本発明の紙幣搬送装置10の構成は、硬貨を含めた貨幣、遊技媒体としてのメダル、或は有価価値を記憶させた所謂プリペイドカード等の搬送装置として容易に適用できる。

【0082】以上、本発明を図面の実施形態について説明したが、本発明は前記した実施形態に限定されるものではなく、特許請求の範囲に記載した構成を変更しない限り適宜に実施できる。

【0083】

【発明の効果】以上説明したように、請求項1に記載した発明は、紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、合流搬送駆動部は、上流側の搬送通路部から送り込まれる紙幣を下流側の搬送通路部に案内すると共に、紙幣投入機側から送り込まれる紙幣を搬送通路部に側方から合流させるように案内する受入れガイド部材を有し、上記合流搬送駆動部を分割構造とすると共に、当該合流搬送駆動部のフレームと受入れガイド部材とを合成樹脂で一体成型したので、部品点数が減少すると共に、組み立てが容易になり、部品代や人件費等を大幅に削減可能である。また、組み立て時に誤差が生じないので、安定した品質の製品を提供可能である。

【0084】請求項3に記載した発明は、紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部を、合成樹脂で成型した第1基体ケース及び第2基体ケースで構成し、第1基体ケースには、ブリーレール及び搬送レールを一体に設け、第2基体ケースには、ローラレール及び搬送レールを一体に設けたので、部品点数が減少すると共に、組み立て作業が容易になり、部品代や人件費等を大幅に削減可能である。また、組み立て時に誤差が生じないので、安定した品質の製品を提供可能である。

【0085】請求項4に記載した発明は、紙幣を挾持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、合流搬送駆動部と紙幣投入機の間、紙幣投入機から送り出された紙幣を合流搬送部の入口に送り込む紙幣中継装置を介在させ、上記紙幣中継装置は、紙幣の送り機構と当該送り機

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構を収納可能なケース兼スペースとを備え、上記送り機構は、ベース体の上下方向に回転自在に設けた回転軸と、この回転軸の中間に設けた回転ブリーと、この回転ブリーに圧接するように付勢された圧接ローラとを備えており、上記ベース体は、一端に合流搬送部のフレームに設けた連結部に嵌合接続可能な接続部を有すると共に、他端に上記フレームの連結部と同形状の連結部を有し、当該ベース体またはケース兼スペースを互に連結可能のように構成してあり、上記回転ブリーを合流搬送駆動部の駆動軸に駆動ベルトで連絡して回転駆動するようにしたので、単一の部材を組み合せることにより異なる島幅に柔軟に対応することができ、コストの削減や部品の在庫が容易になる。また、急な仕様変更にも直ちに対応可能であるなど、実用的価値が極めて高い。

【0086】請求項7に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部を構成する基体ケースに、上面にカット面を形成した片持ち構造のブリーを設けると共に、駆動ローラと搬送ベルトを合流搬送装置から分離し、上記ブリーに架け渡す搬送ベルトの着脱を容易にしたので、迅速にベルトの交換が可能であり、遊技を中断するなどの不都合を最小限に抑えることができる。

【0087】請求項9に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、駆動源のモータを取り付ける配線ボックスに、側面方向に開口するモータ支持部と出脱可能に構成したモータ固定手段とを設け、モータに延設した取付片をモータ支持部に係止させると共に、突出状態のモータ固定手段でモータを固定するようにしたので、モータの交換作業が著しく容易になる。また、工具を必要としないので、狭い島内の空間においても迅速な作業が可能である。

【0088】請求項13に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部に、紙幣の下端付近をガイドする溝状の紙幣ガイドを設けたので、紙幣を安定した姿勢で搬送することができ、紙幣詰まりを未然に防止することができる。

【0089】請求項14に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路の

先端部分に、ベレット等が落下可能な排出口を設けたので、紙幣搬送装置内へ混入したベレット等を容易に排出することができ、ベレット等の混入によるトラブルを未然に防止することができる。

【0090】請求項15に記載した発明は、紙幣を挟持した状態で上流側から下流側へ搬送する搬送通路部と、紙幣投入機に投入された紙幣を、上記搬送通路部に合流させると共に駆動源を有する合流搬送駆動部とを備えた遊技店に設置される紙幣搬送装置であって、搬送通路部に設ける圧接ローラの側周面に凹陥部を設けると共に、当該圧接ローラに無端平ベルトを架け渡し、上記圧接ローラに対応するブリーには無端丸ベルトを架け渡し、上記無端平ベルトと無端丸ベルトとを圧接させて搬送する紙幣を挟持するようにしたので、押圧バネが不要となる。従って、部品点数の大幅な削減及び組立工数の大幅な削減が可能になり、部品コスト及び人件費を大幅に削減できる。また、押圧バネの取付不良や押圧力のバラツキが発生しないので、紙幣の搬送が安定し、紙幣詰まりが発生する恐れのない紙幣搬送装置を提供可能である。

【図面の簡単な説明】

【図1】本発明の隔台タイプの紙幣搬送装置の一実施形態を示す斜視図である。

【図2】本発明の全台タイプの紙幣搬送装置の一実施形態を示す斜視図である。

【図3】基体ケースを開放した状態の一実施形態を示す斜視図である。

【図4】紙幣搬送装置の仕様状態を示す概略説明図である。

【図5】紙幣搬送装置の内部を示す開放状態の正面図である。

【図6】紙幣搬送装置の内部を示す開放状態の平面図である。

【図7】第2基体ケースの内側を示す正面図である。

【図8】合流搬送駆動部を示す要部の平面図である。

【図9】下部紙幣ガイド及びジョイント部材を説明する平面図である。

【図10】合流搬送駆動部及び紙幣中継装置を示す平面図である。

【図11】合流搬送駆動部に設けた紙幣中継装置の正面図である。

【図12】合流搬送駆動部に設けた紙幣中継装置の側面図である。

【図13】上下に分割構成した合流搬送装置のフレームの正面図である。

【図14】上下に分割構成した合流搬送装置のフレームの上流側側面図である。

【図15】上下に分割構成した合流搬送装置のフレームの下流側側面図である。

【図16】上下に分割構成した合流搬送装置のフレームの縦断面図である。

【図17】上側フレームの内面を表わす底面図である。  
 【図18】下側フレームの内面を表わす平面図である。  
 【図19】合流搬送駆動部における動作説明図である。  
 【図20】モータユニットの一実施形態の斜視図である。  
 【図21】モータユニットの一実施形態の断面図である。  
 【図22】モータユニットの他の実施形態の断面図である。  
 【図23】モータユニットの他の実施形態の斜視図である。  
 【図24】搬送通路部の一実施形態の側面図である。  
 【図25】搬送通路部の他の実施形態の側面図である。  
 【図26】搬送通路部の他の実施形態を示す平面図である。  
 【図27】搬送通路部の他の実施形態における内部を示す正面図である。  
 【図28】同上の第2基体ケースの内部を示す正面図である。  
 【図29】搬送通路部の他の実施形態を示す側面説明図である。  
 【図30】紙幣中継装置を組み合わせた実施形態の平面説明図である。  
 【図31】紙幣中継装置を組み合わせた実施形態の正面説明図である。  
 【図32】紙幣中継装置を組み合わせた実施形態の側面説明図である。  
 【図33】他の実施形態による紙幣搬送装置の内部を示す開放状態の平面図である。

## 【符号の説明】

## 5 施錠装置

10 紙幣搬送装置

41 送り機構

42 ケース兼スペース

100 合流搬送駆動部

120 受入れガイド部材

1201, 1301 上側受入れガイド部材

120u, 130u 下側受入れガイド部材

121 第1通路形成板部

122 第2通路形成板部

124 空隙

130 受入れガイド部材

132 通路形成板部

133 空隙

140 モータユニット

141 配線ボックス

142 モータ

145 モータ取付板

145a, 145b 鋳部

146a, 146b 支持部

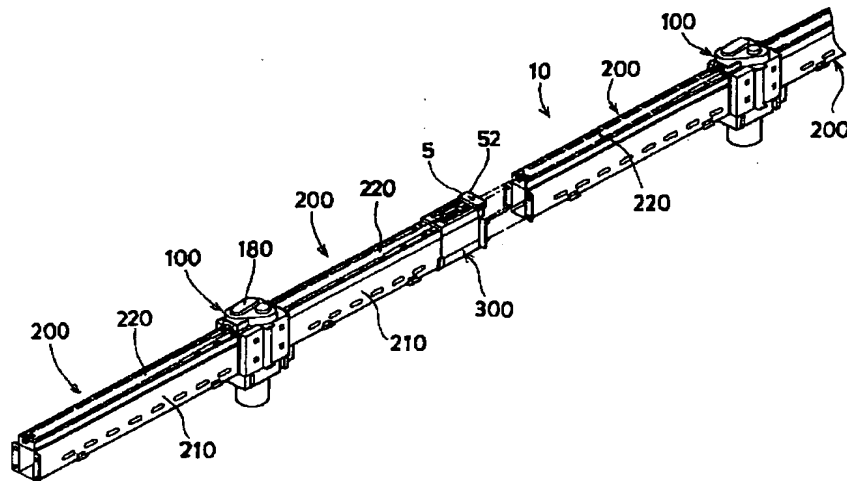
147 突起  
 148 固定ボタン  
 150 ブーリ  
 151 無端丸ベルト  
 152 ローラベース  
 153 圧接ローラ  
 161 無端丸ベルト  
 164 送りローラ  
 170 駆動軸  
 171 従動軸  
 172 従動軸  
 173 駆動軸  
 180 ギヤカバー  
 190 駆動ローラ  
 200 搬送通路部  
 210 基体ケース  
 210a 第1基体ケース  
 210b 第2基体ケース  
 220 開閉ケース  
 230 ブーリレール  
 231 ブーリ  
 233 台座レール  
 234 連繋ギヤ  
 235 連動ギヤ  
 260 ローラレール  
 261 圧接ローラ  
 265 圧接ローラ  
 266 平ベルト  
 270 紙幣搬送ガイド  
 30 400 紙幣中継装置  
 410 回転ブーリ  
 411 ベース体  
 412 回転軸  
 413 駆動ブーリ  
 414 駆動ブーリ  
 415 駆動ベルト  
 416 テンションローラ  
 420 圧接ローラ  
 430 連結部  
 40 440 接続部  
 450 連結部  
 A 搬送通路  
 B 搬送通路  
 BL 下側ブロック  
 BU 上側ブロック  
 C 紙幣通路  
 F フレーム  
 F1 下側フレーム  
 Fu 上側フレーム  
 50 P 遊技台



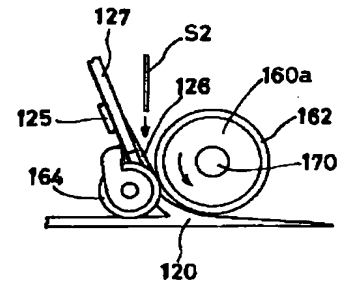
Q 玉貸機  
 R 紙幣検出用センサ  
 r0, r1, r2, ... センサ取付孔

\* S 紙幣  
 S1 紙幣  
 \* S2 紙幣

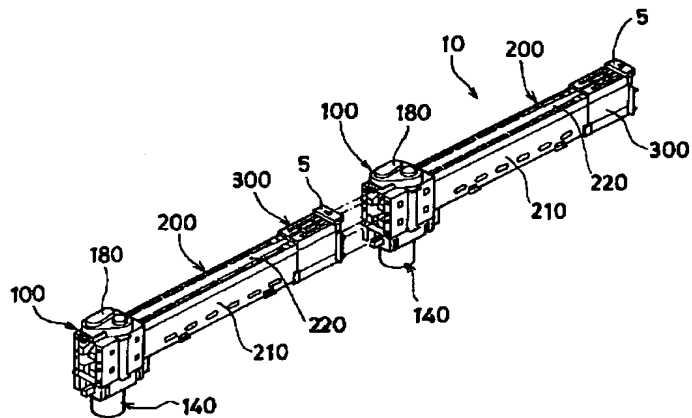
【図1】



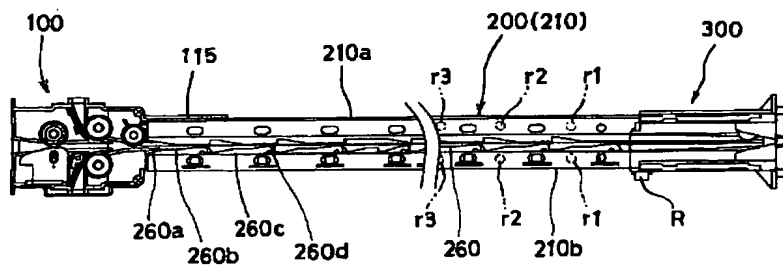
【図19】



【図2】

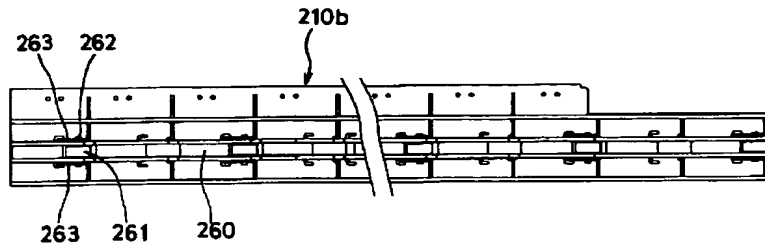


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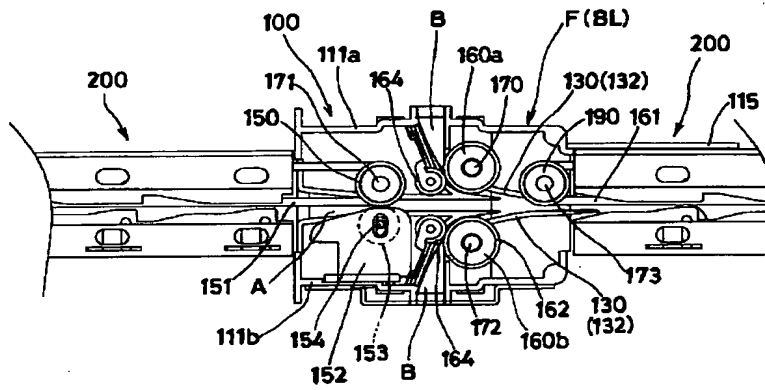




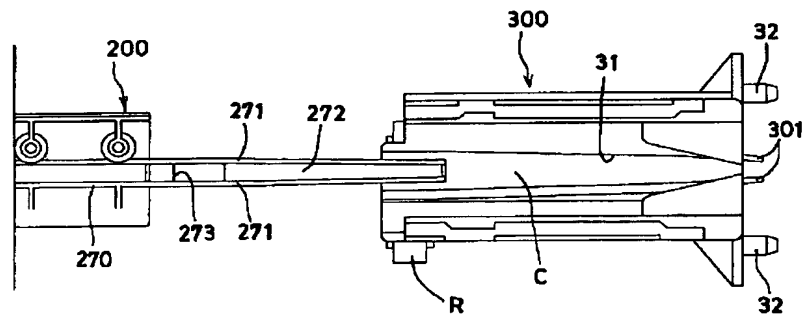
【図7】



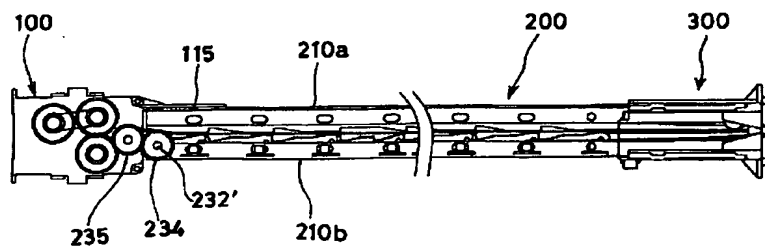
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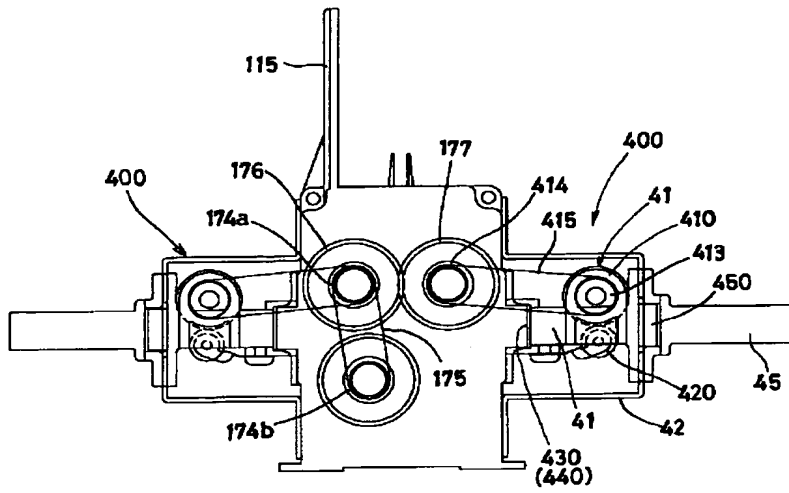
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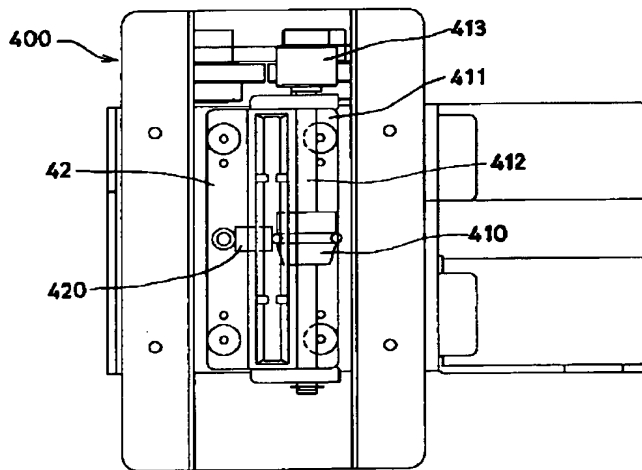
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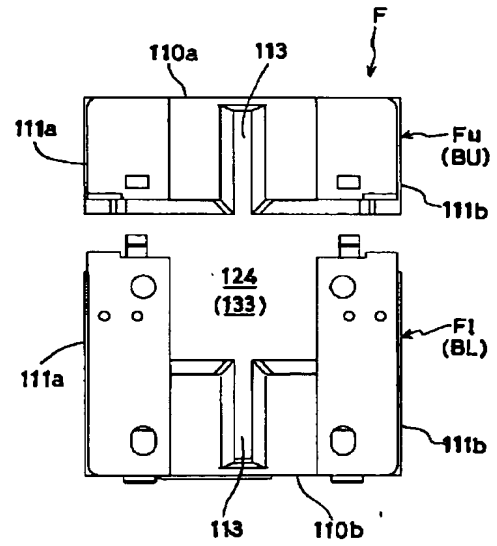
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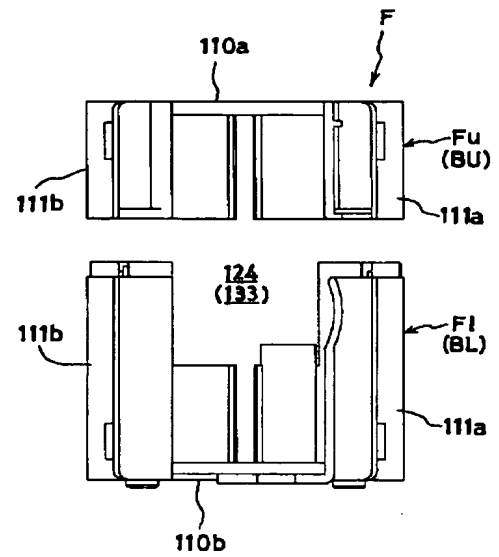
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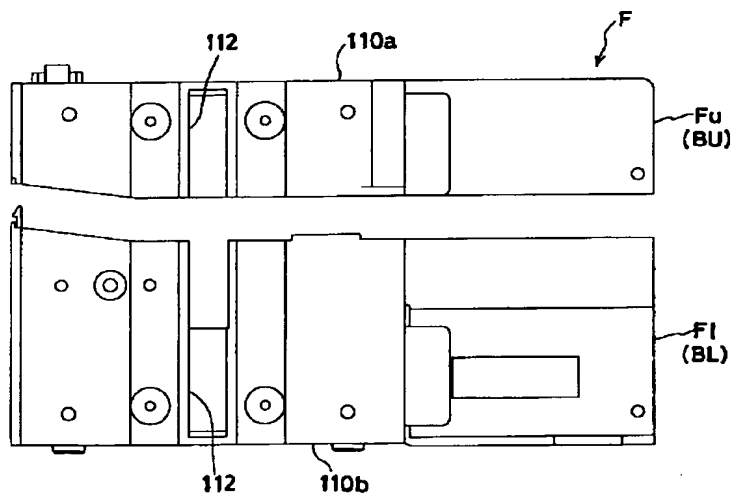
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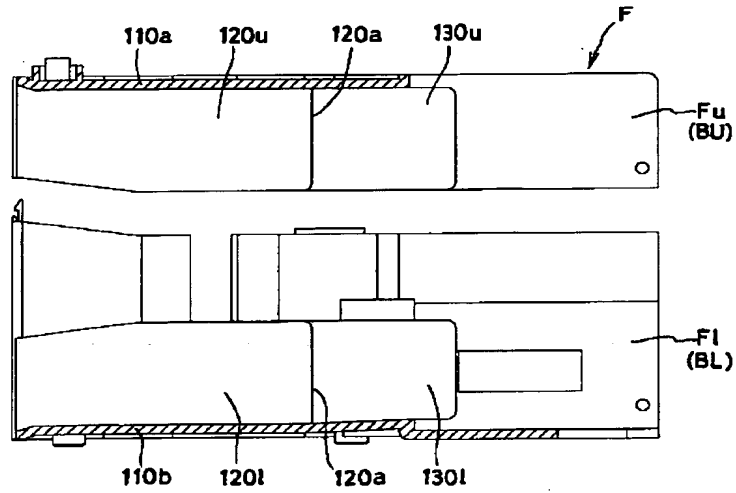
【圖 15】



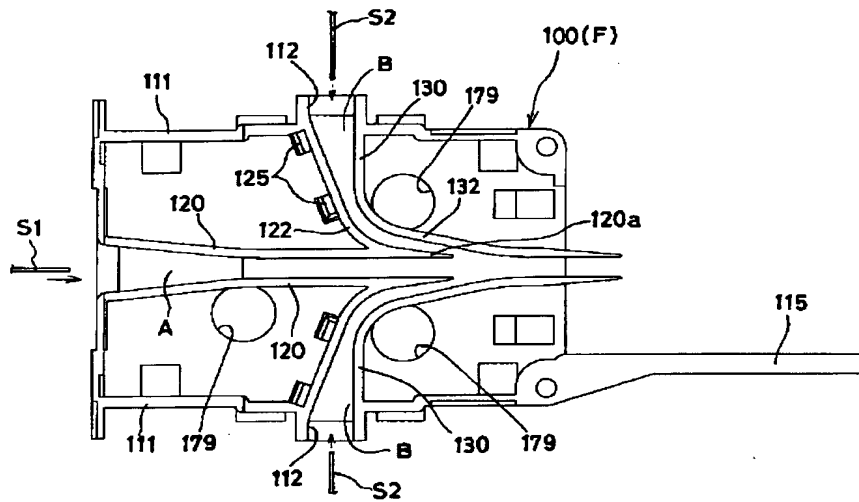
【図 13】



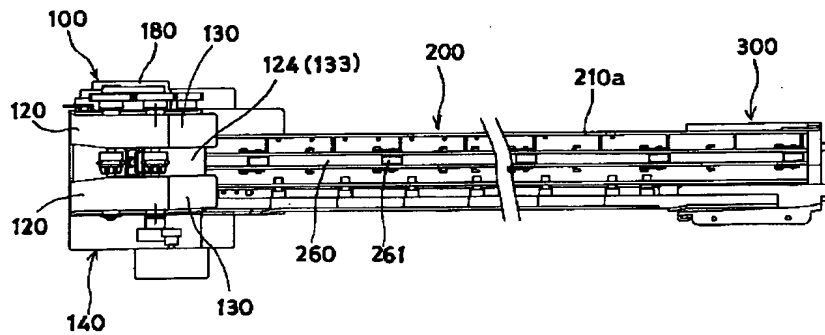
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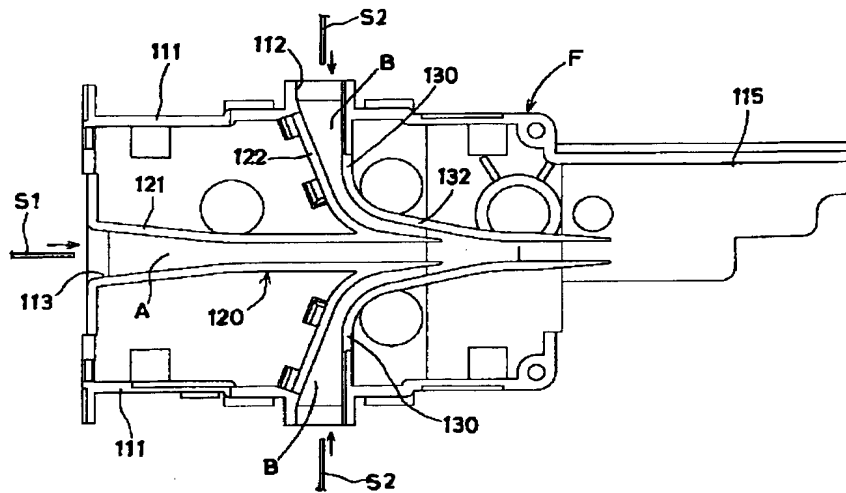
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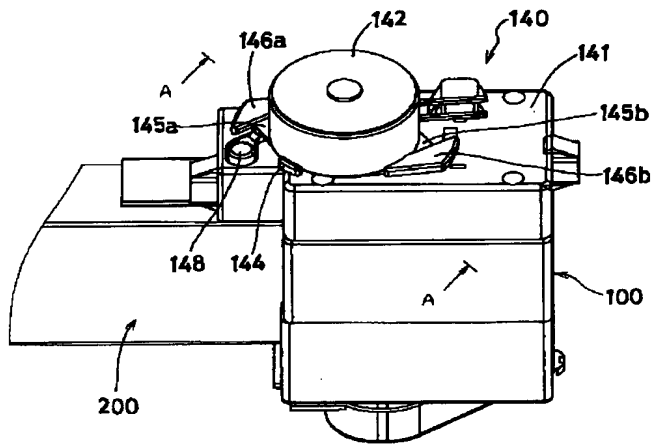
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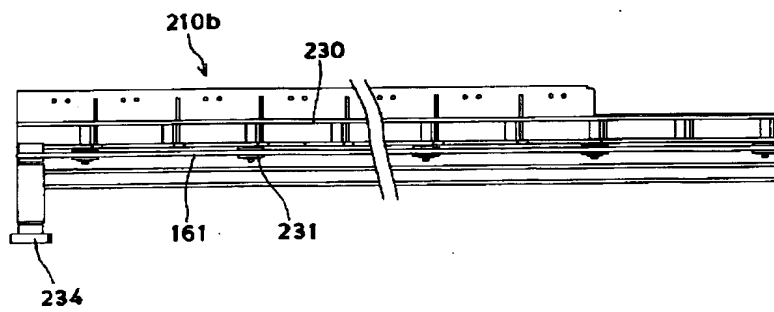
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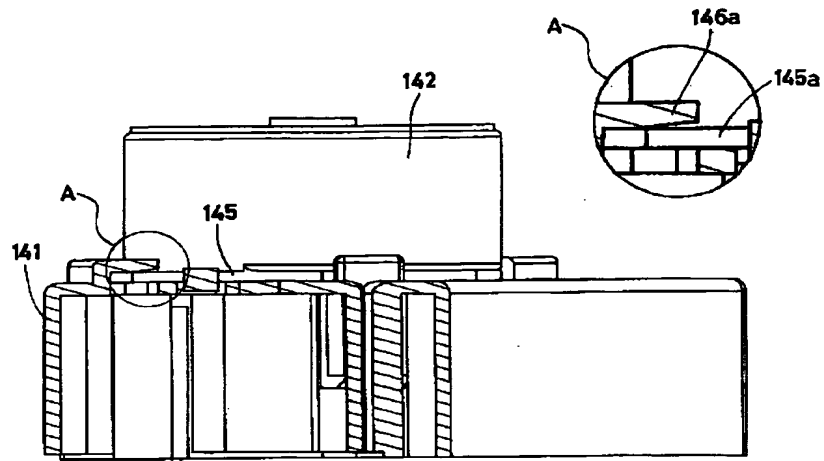
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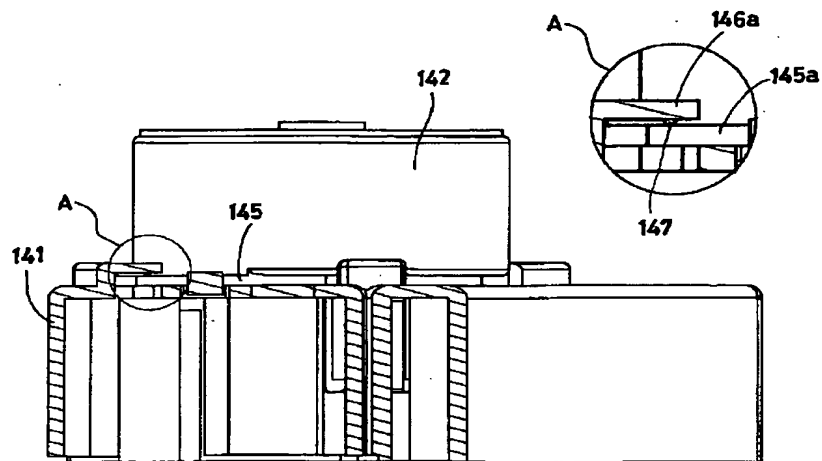
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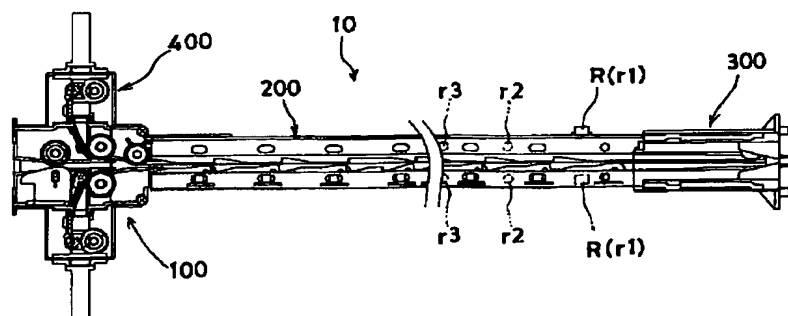
【図21】



【図22】

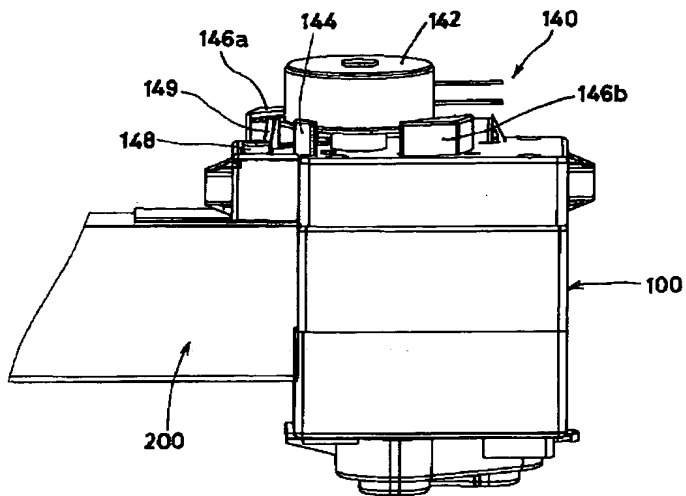


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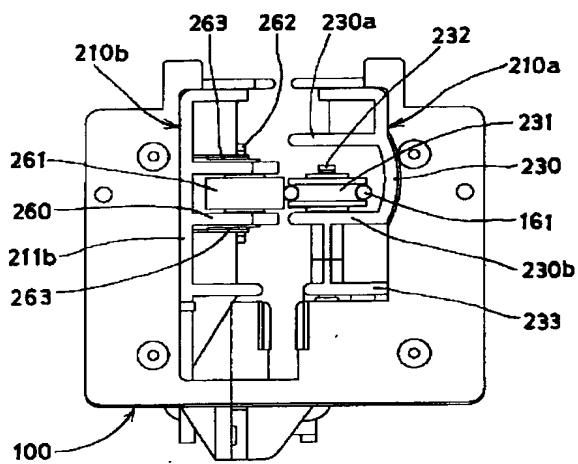




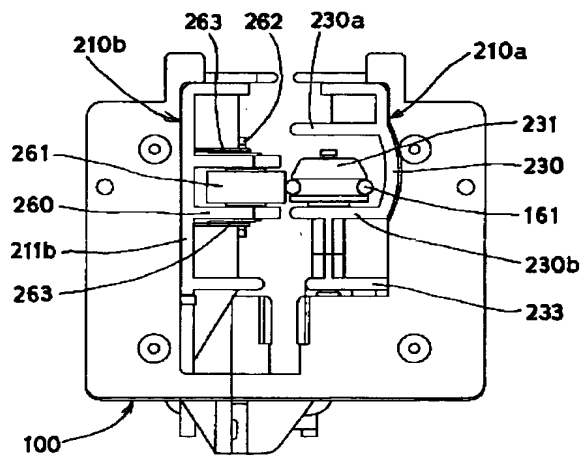
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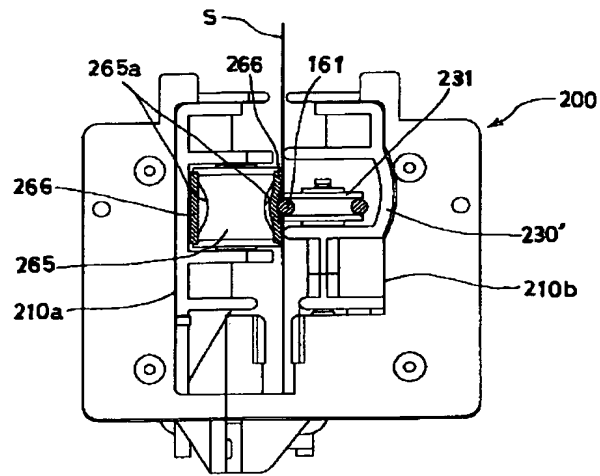
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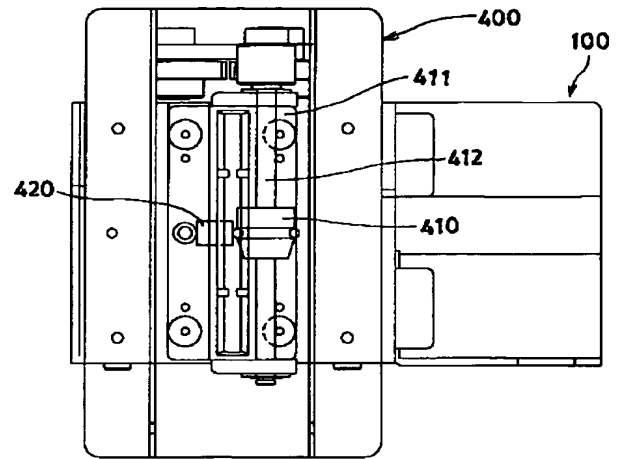
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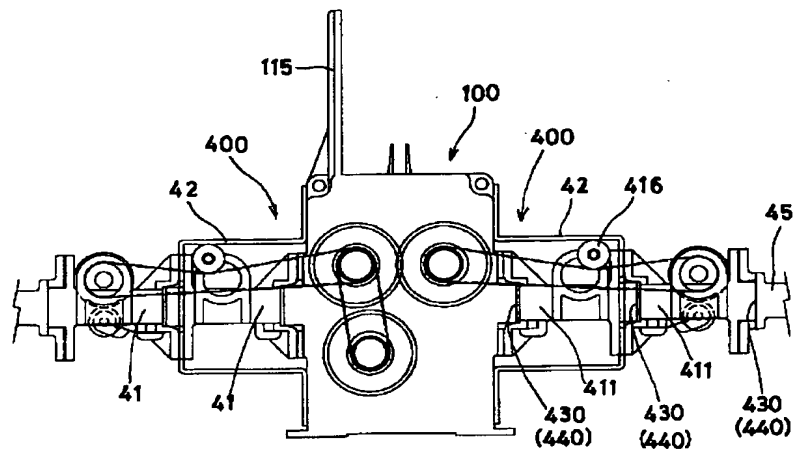
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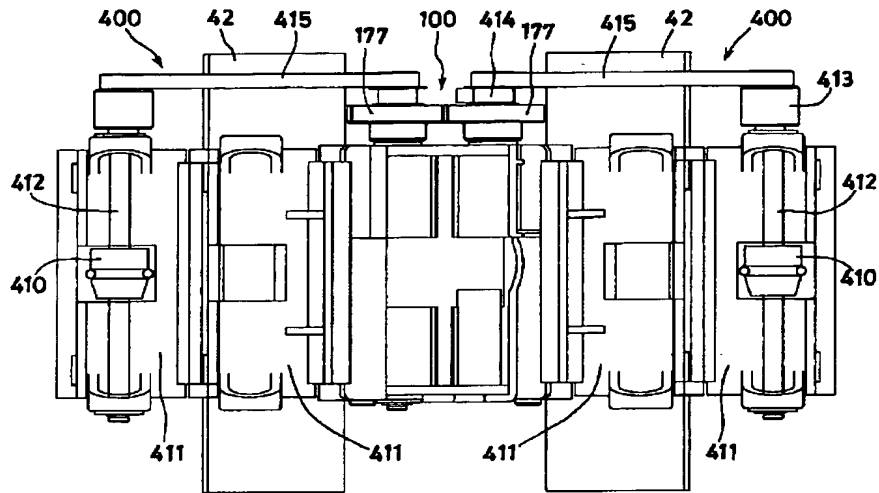
【図31】



【図30】



【図32】



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